

FIG. 3

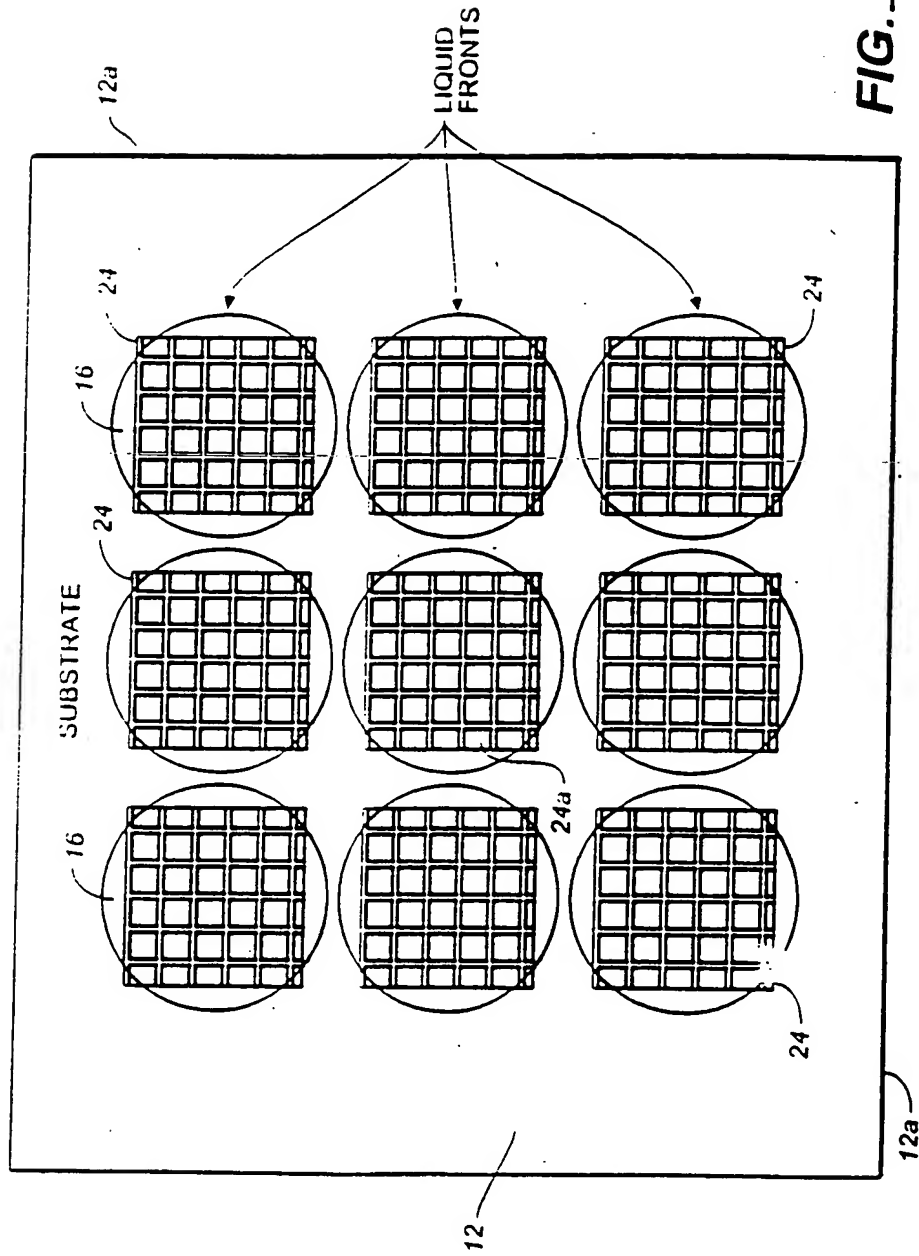
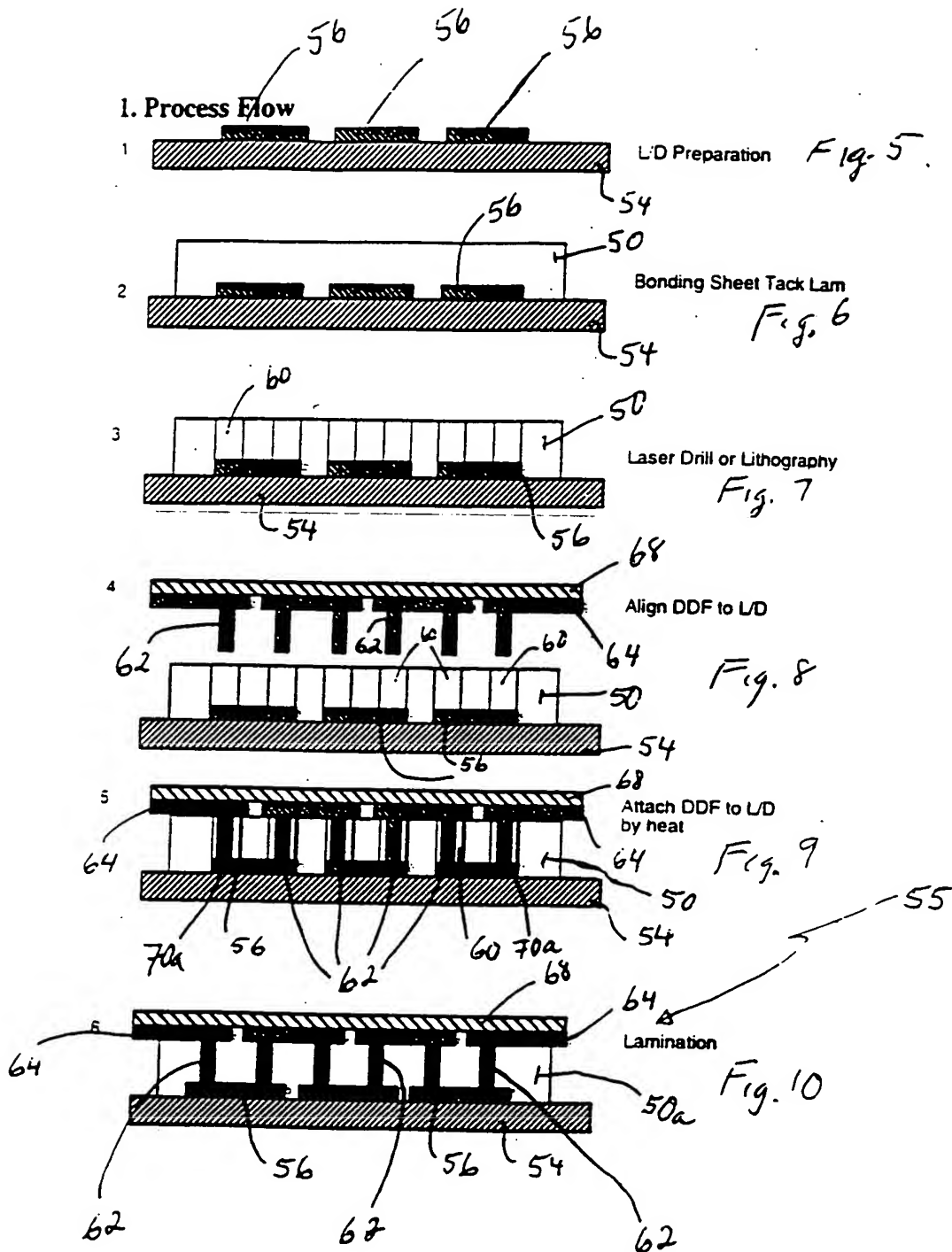
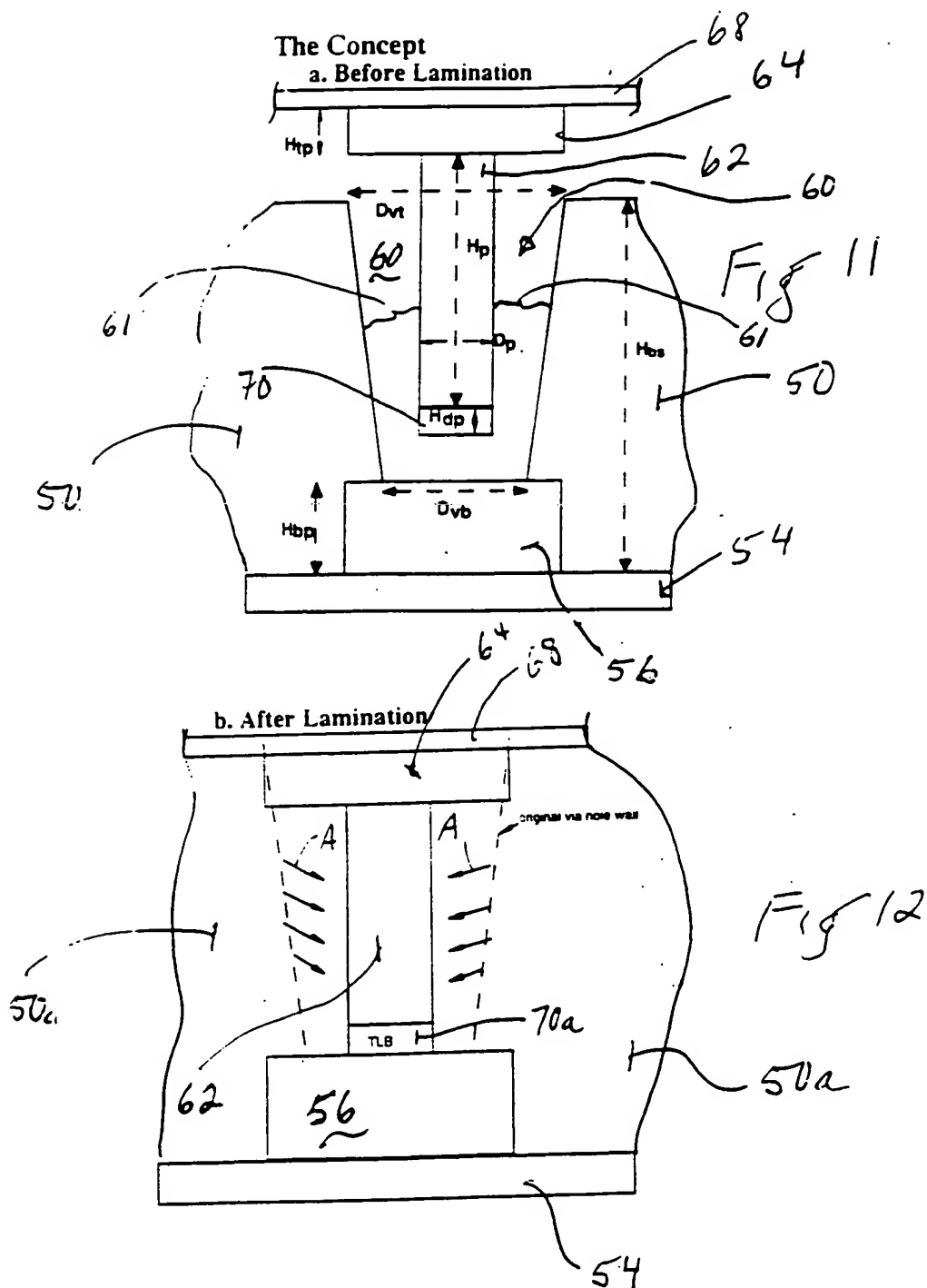
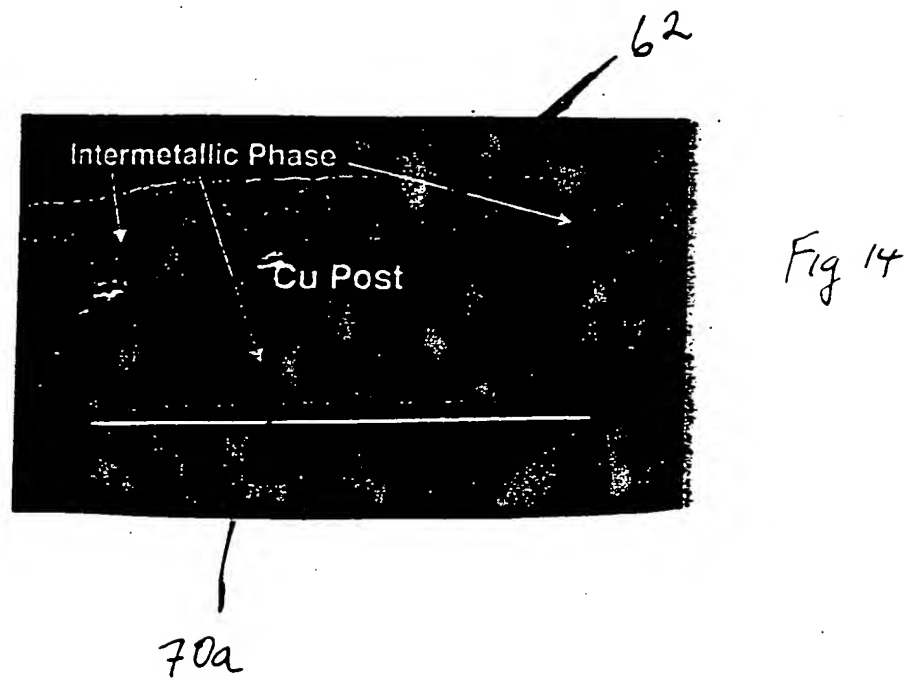
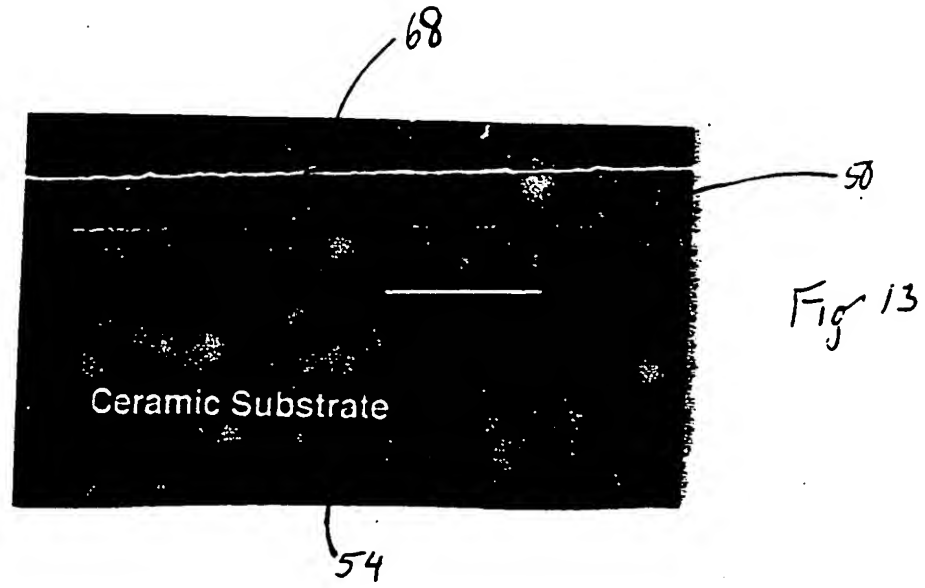
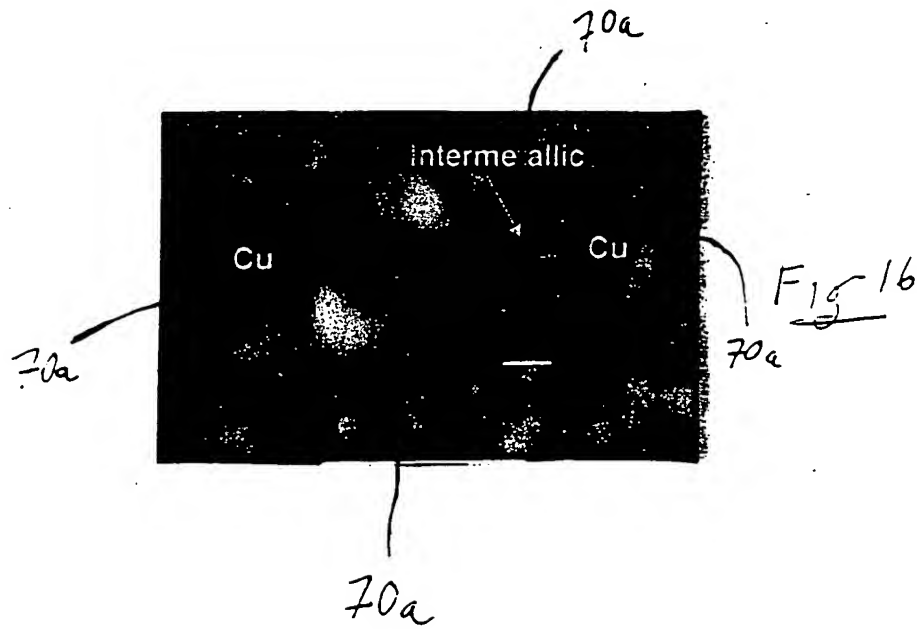
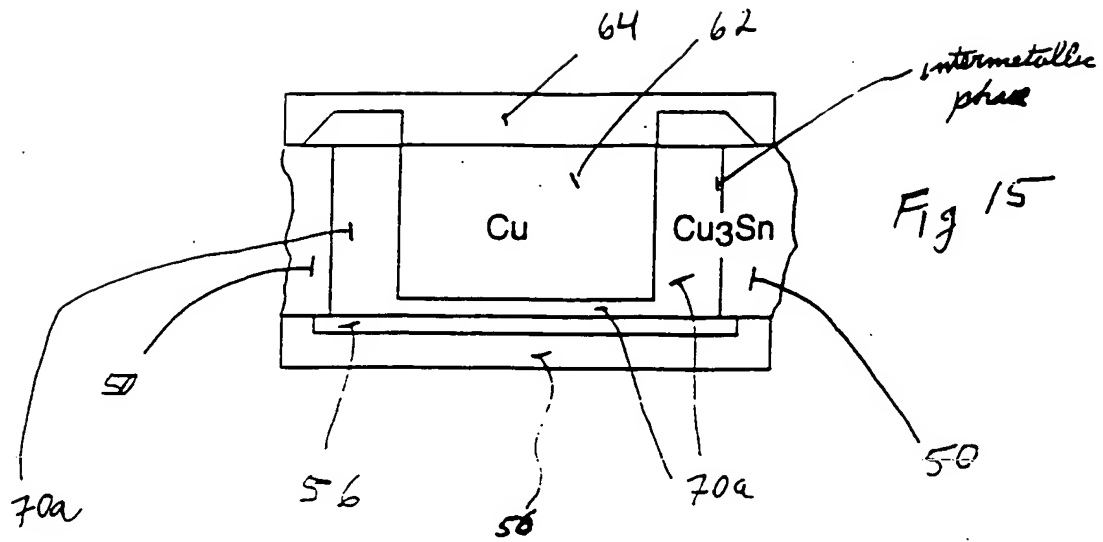


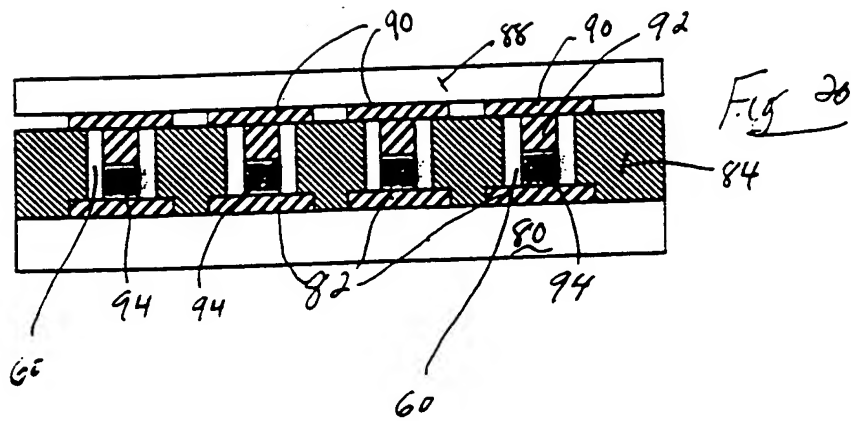
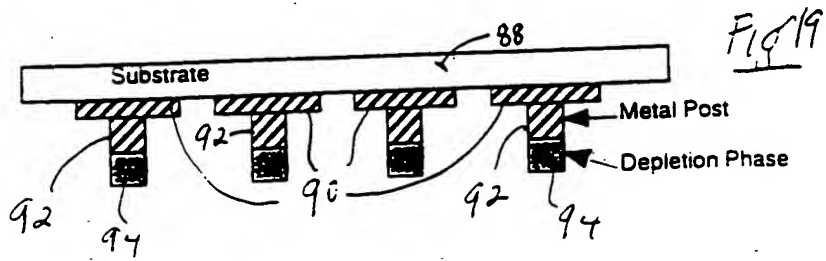
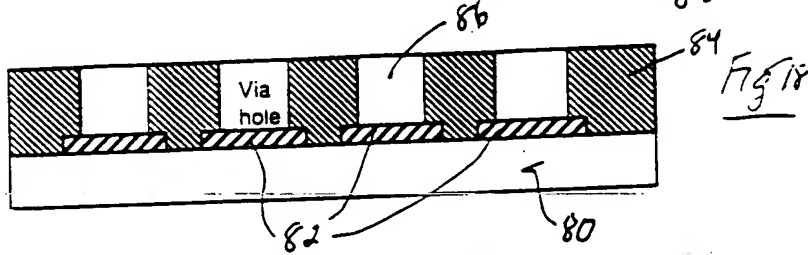
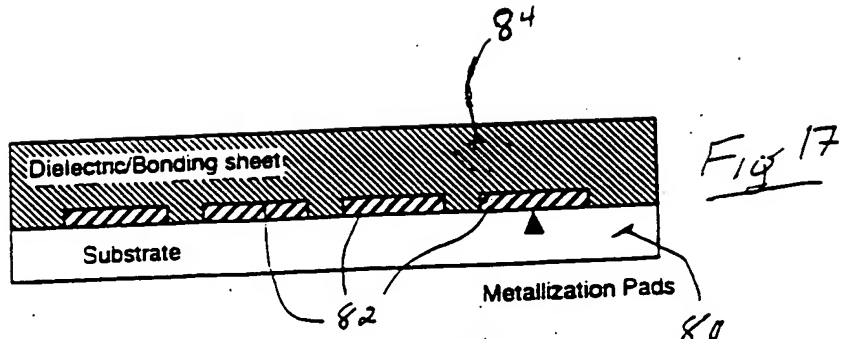
FIG. 4

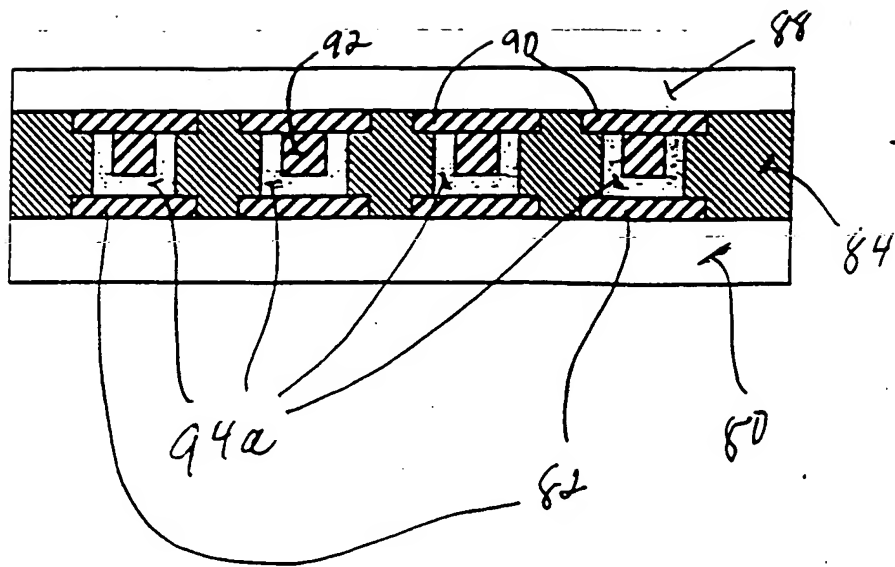










Fig 21

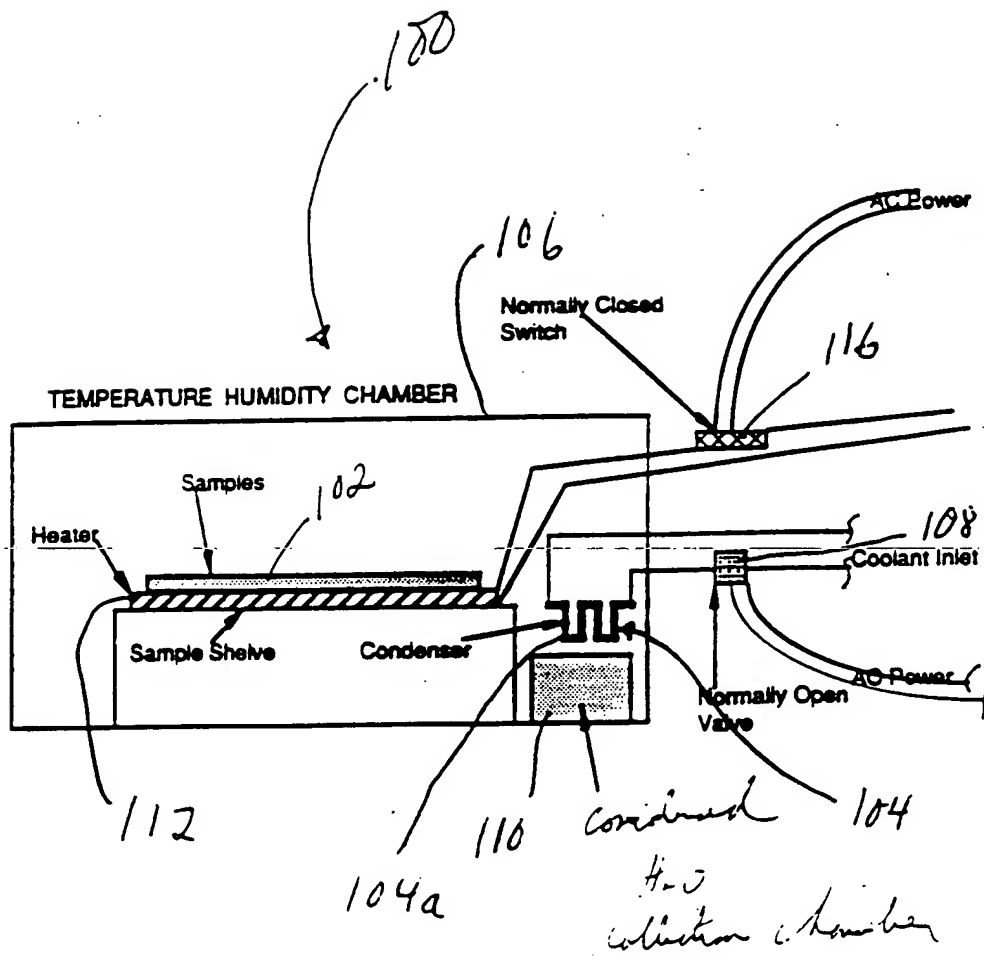


Fig 22

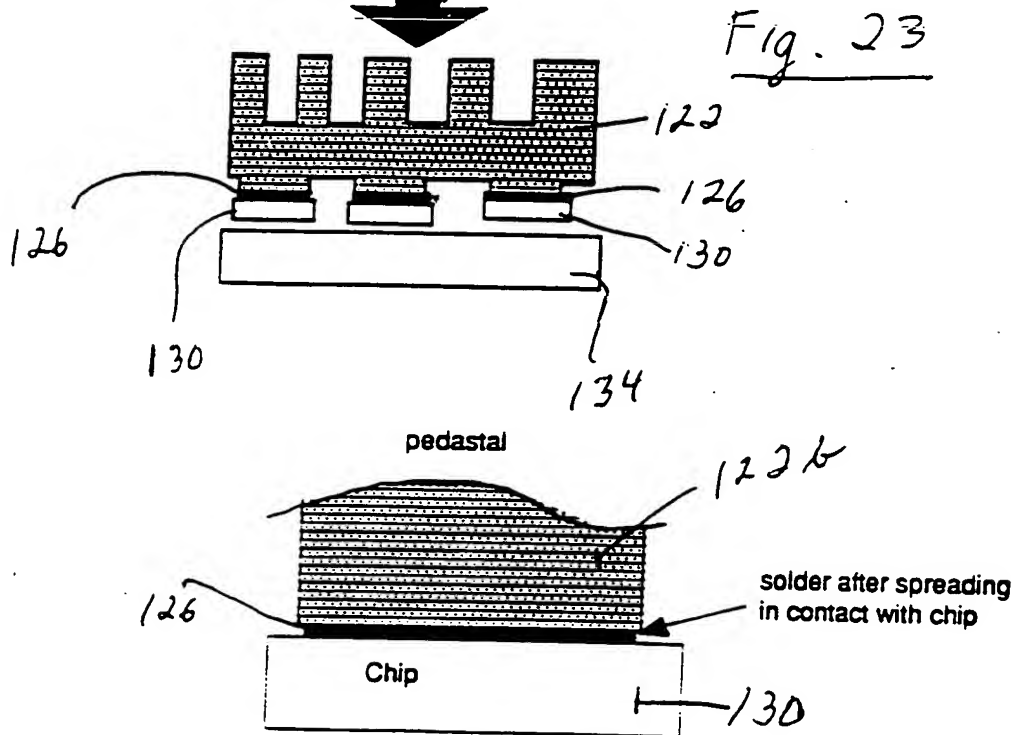
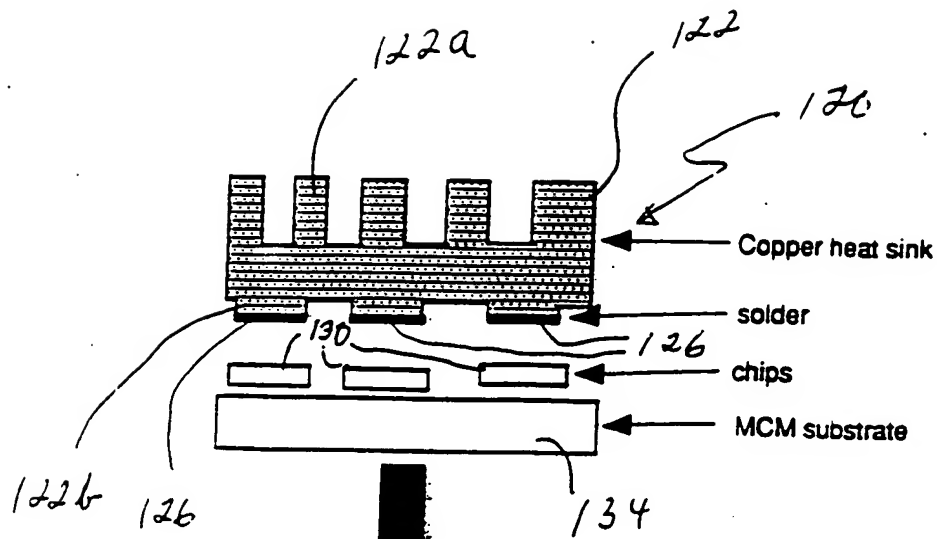
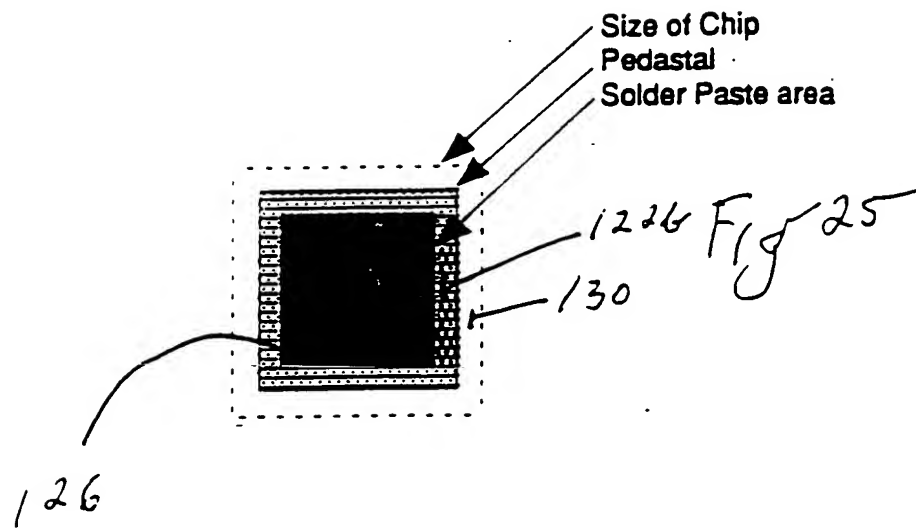
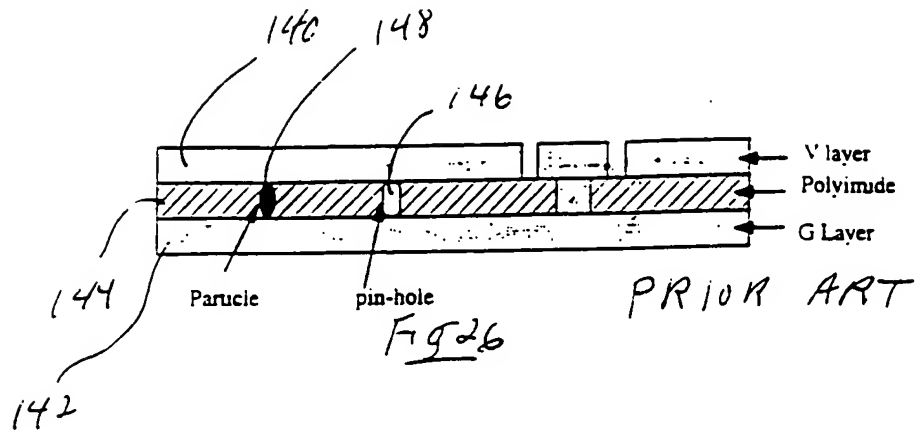


Fig 24





The New Process

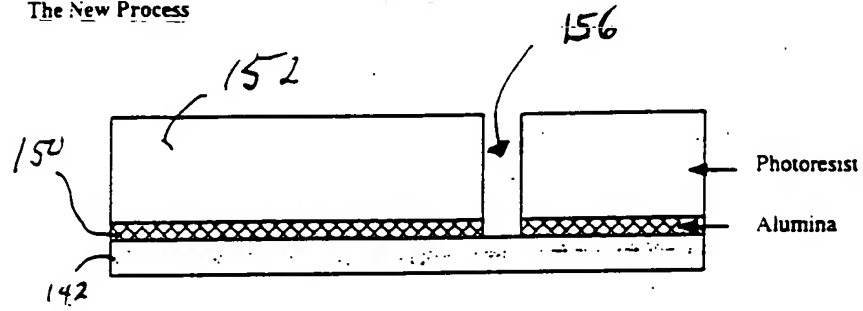


Fig 27

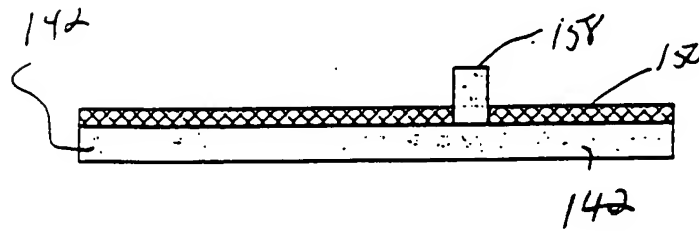
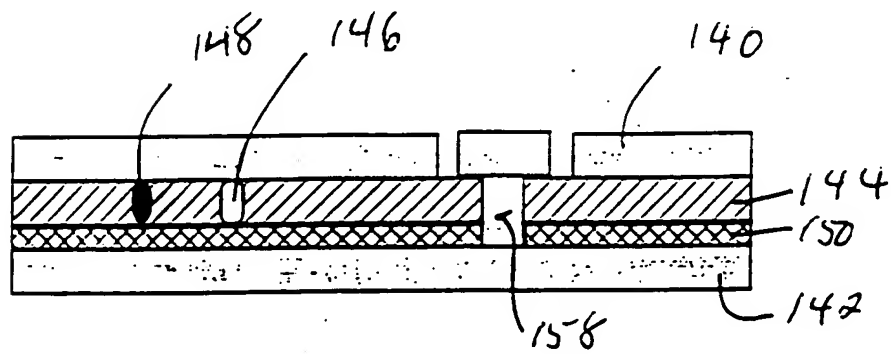
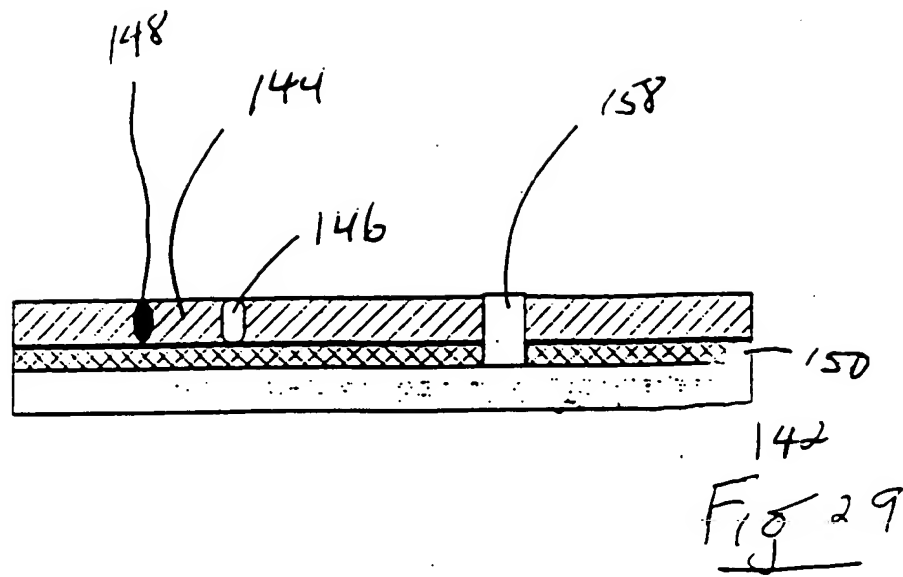
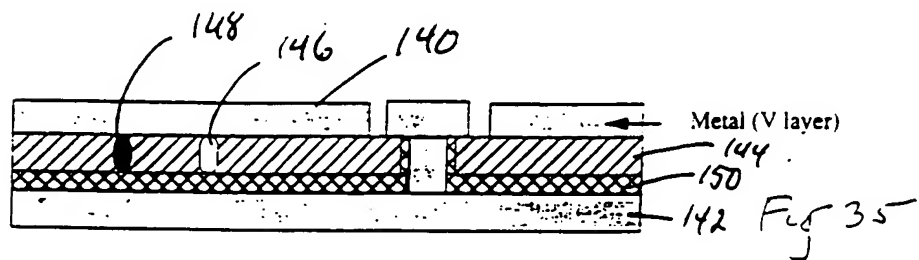
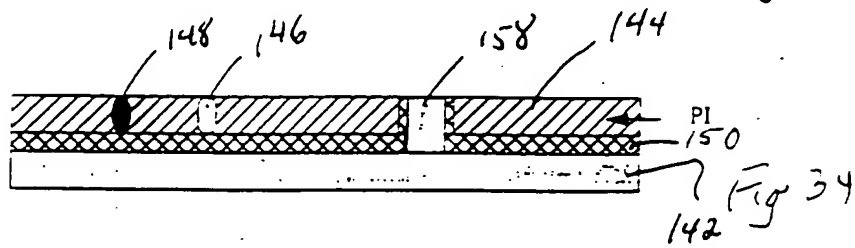
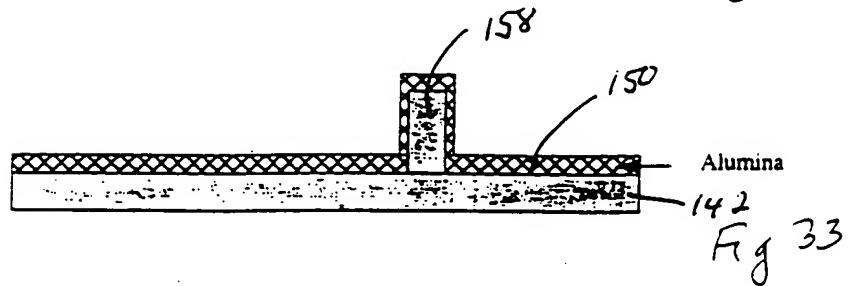
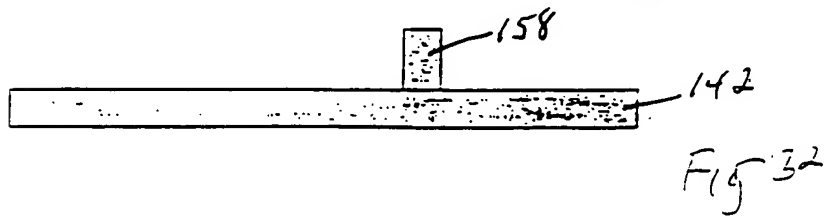
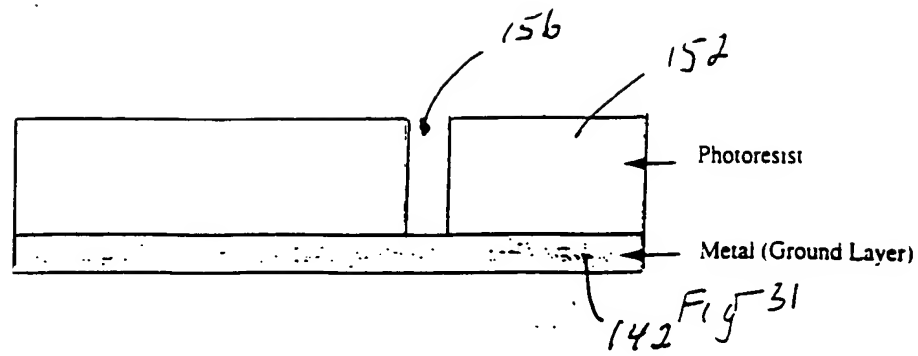
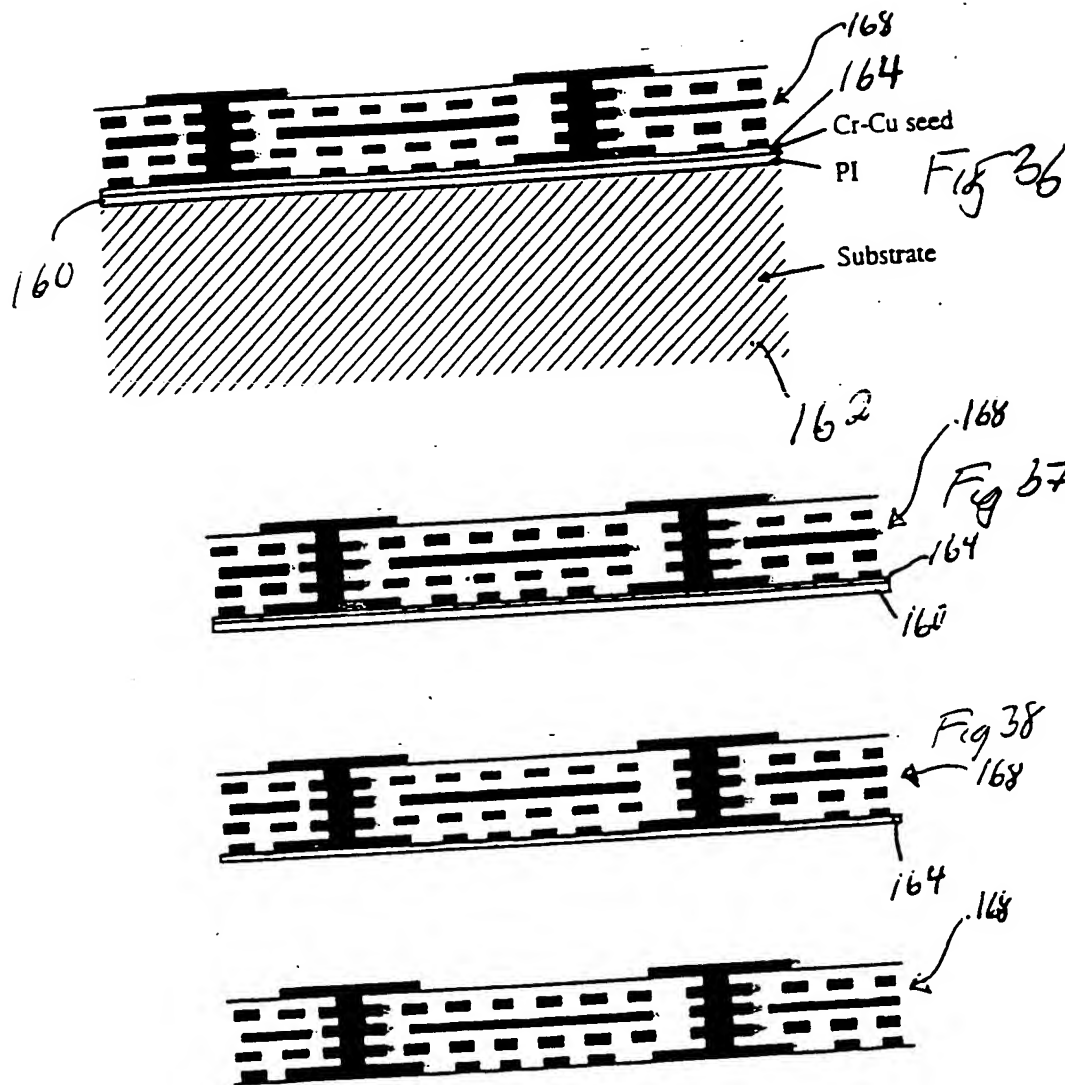
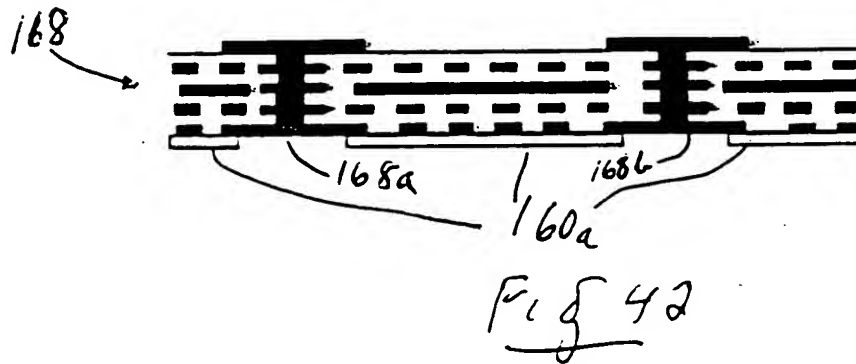
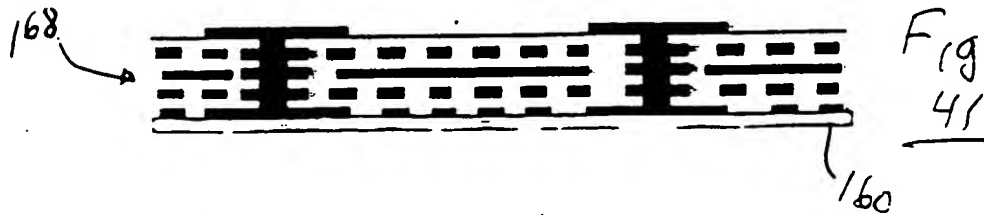
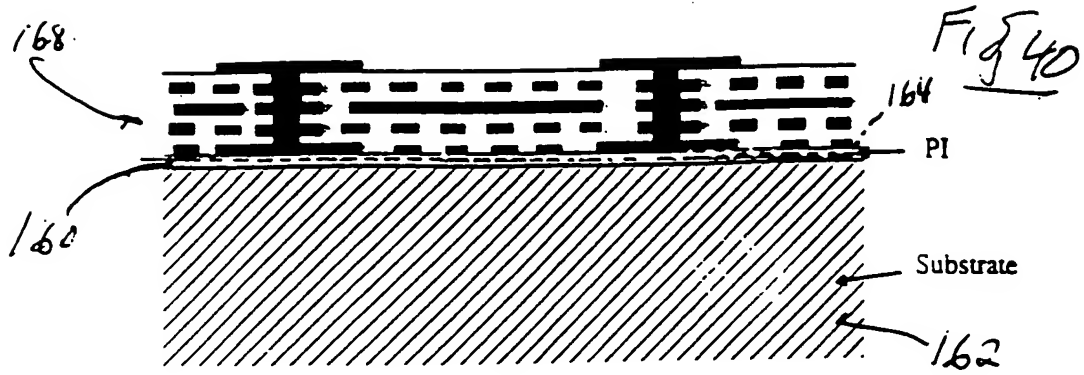


Fig 28





Fig 39



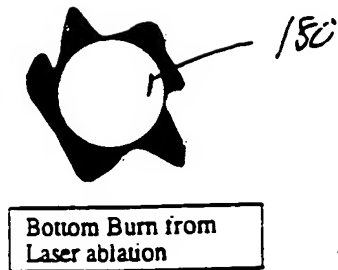
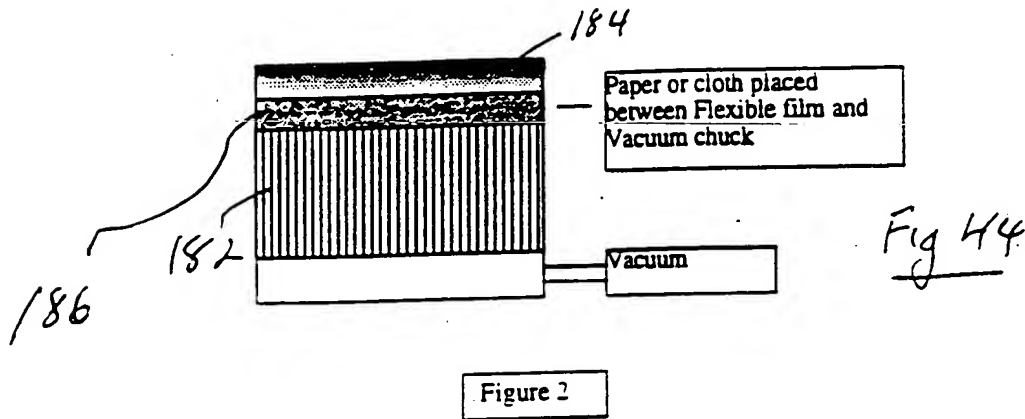
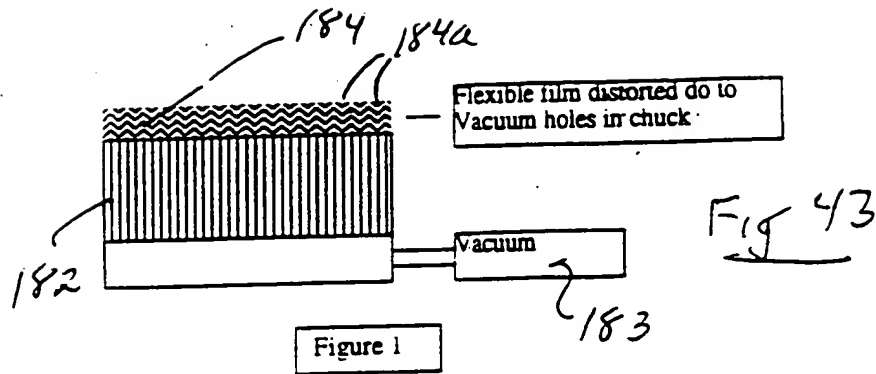


Figure 3

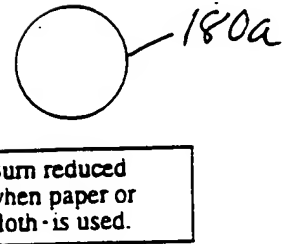


Figure 4

Fig 45

Fig 46

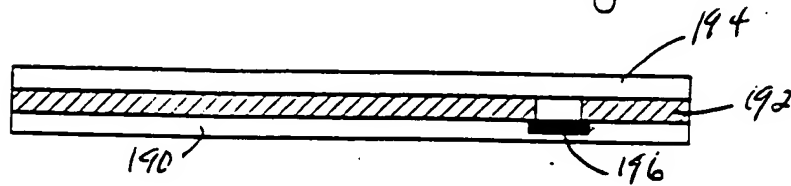
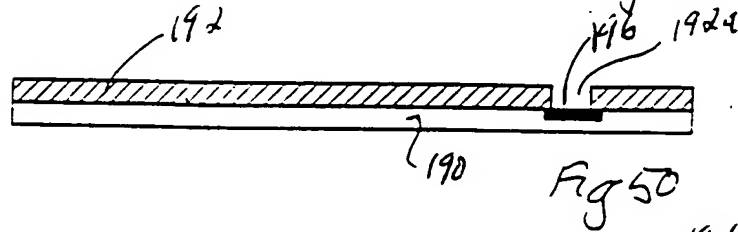
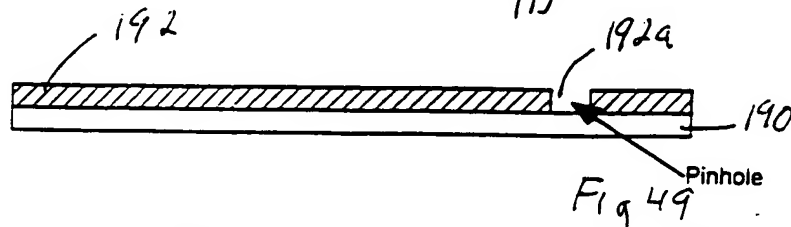
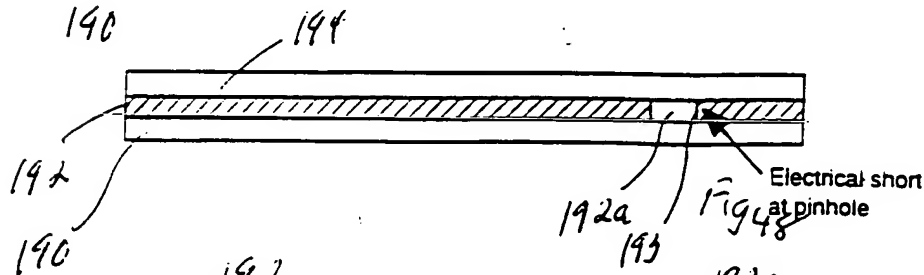
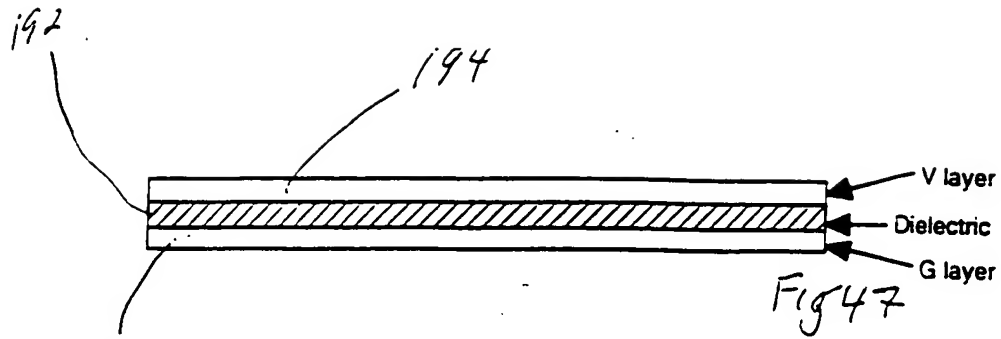
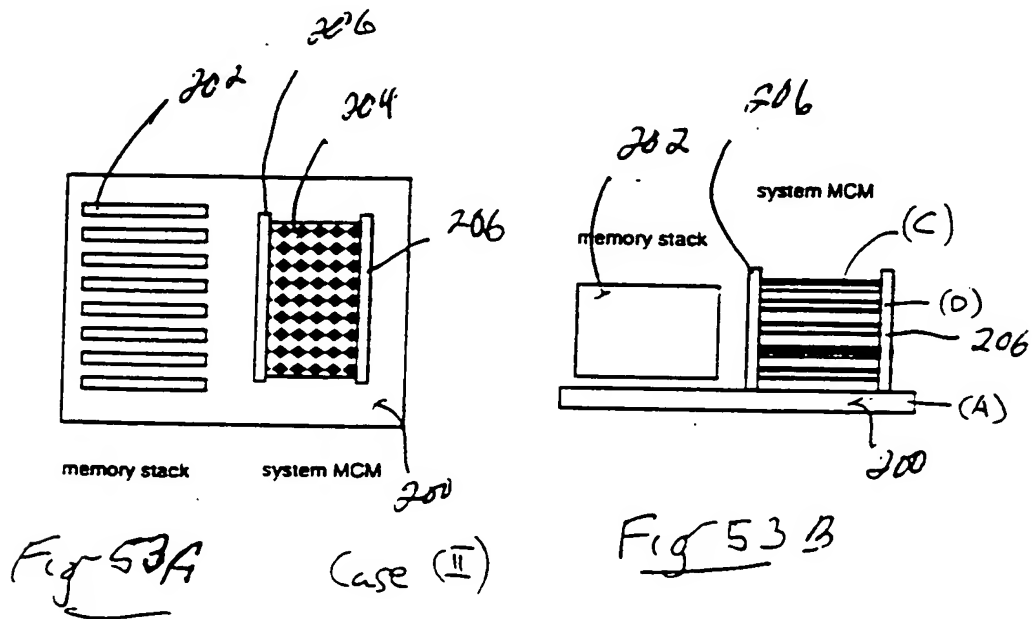
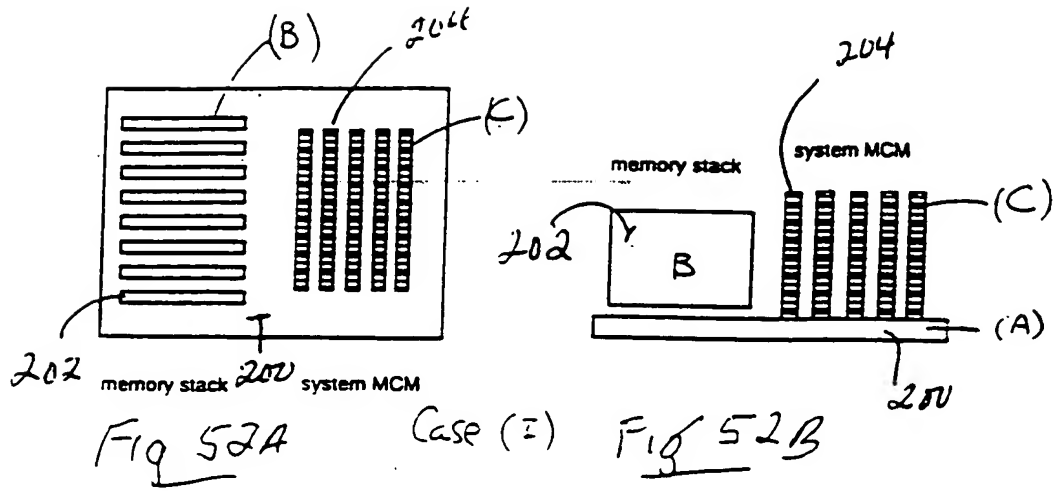


Fig 51



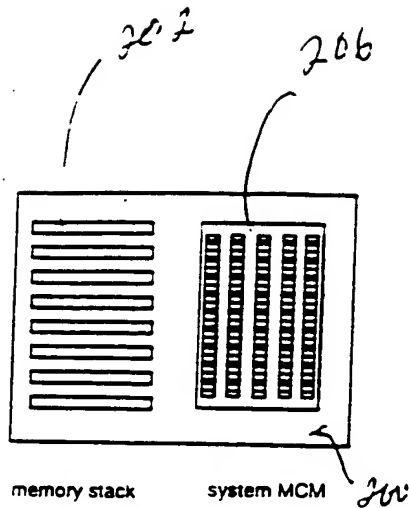


Fig 54A

Case (III)

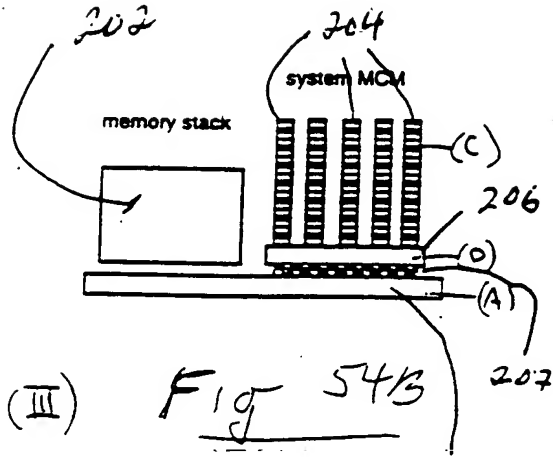


Fig 54B

200

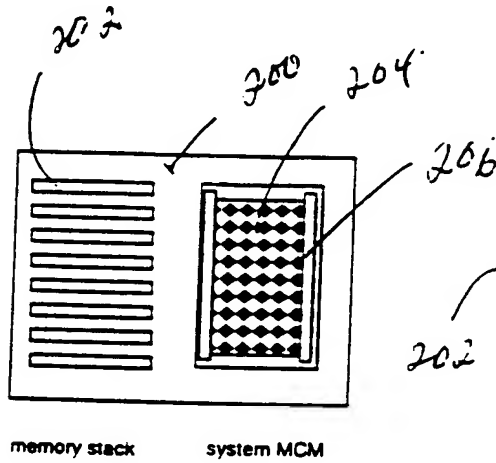


Fig 55A

Case (IV)

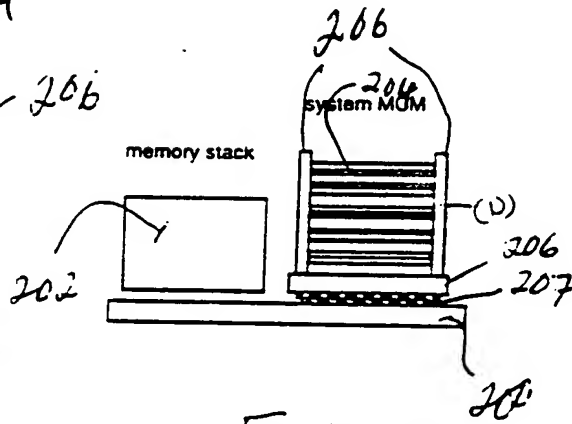


Fig 55B

200

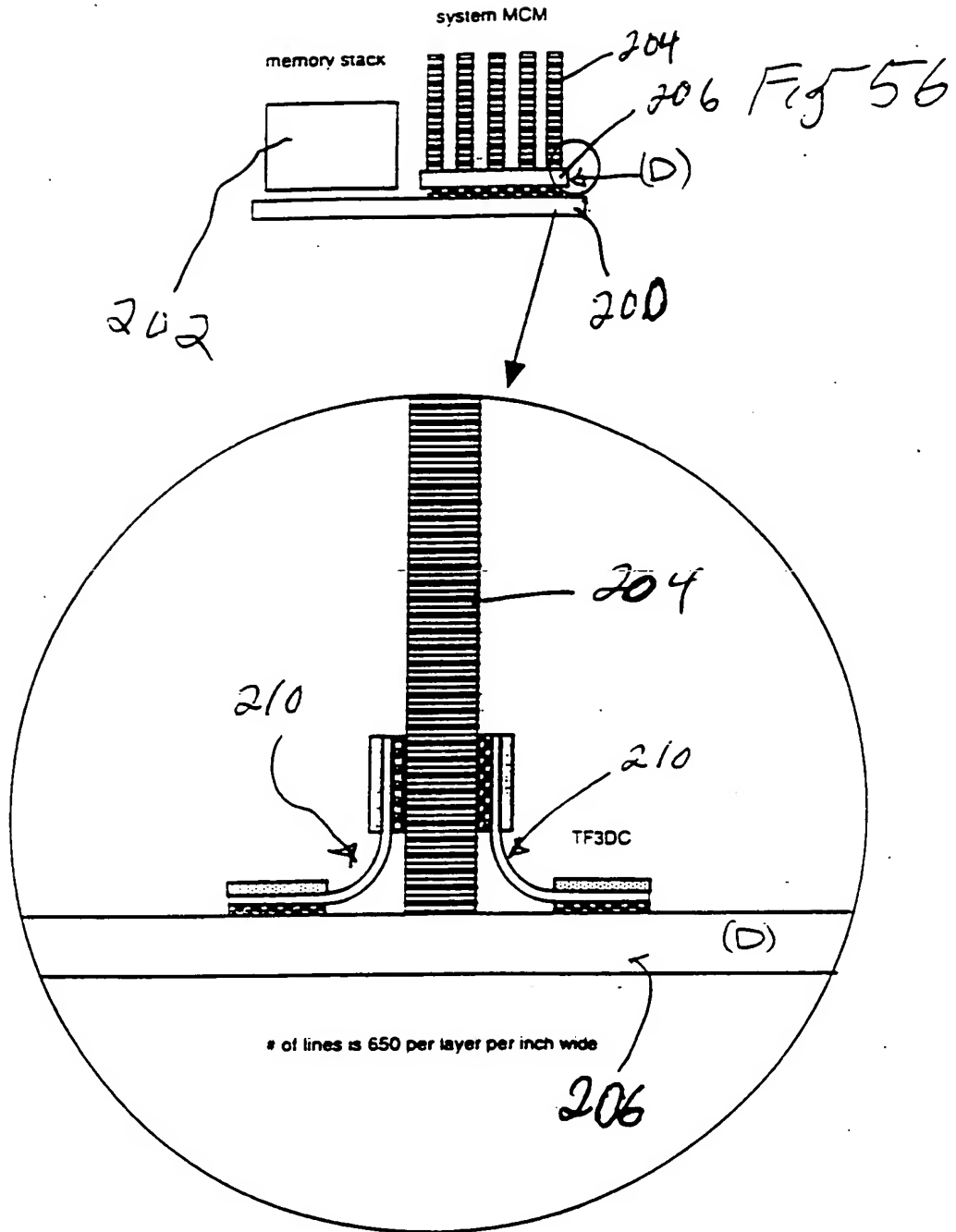
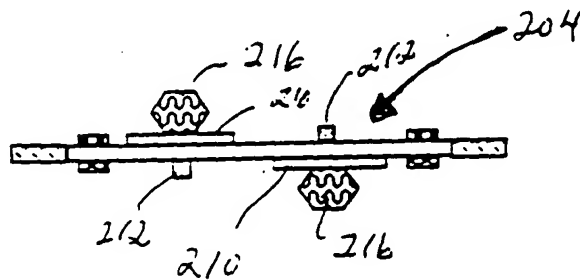
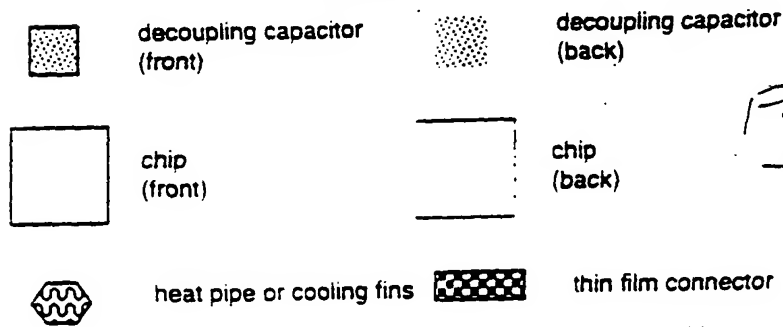
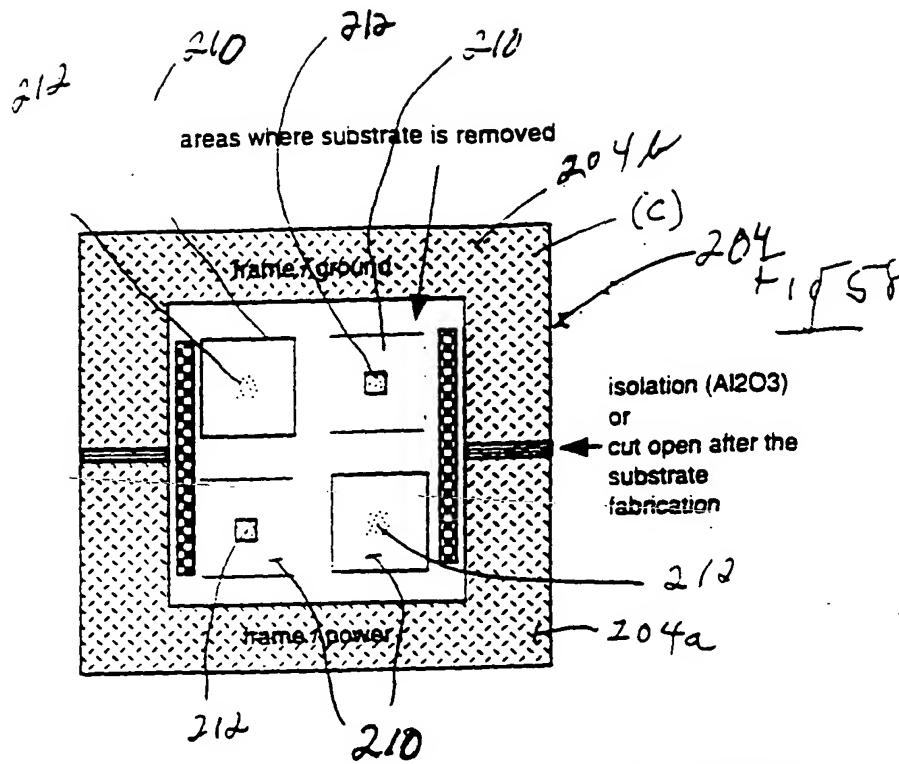
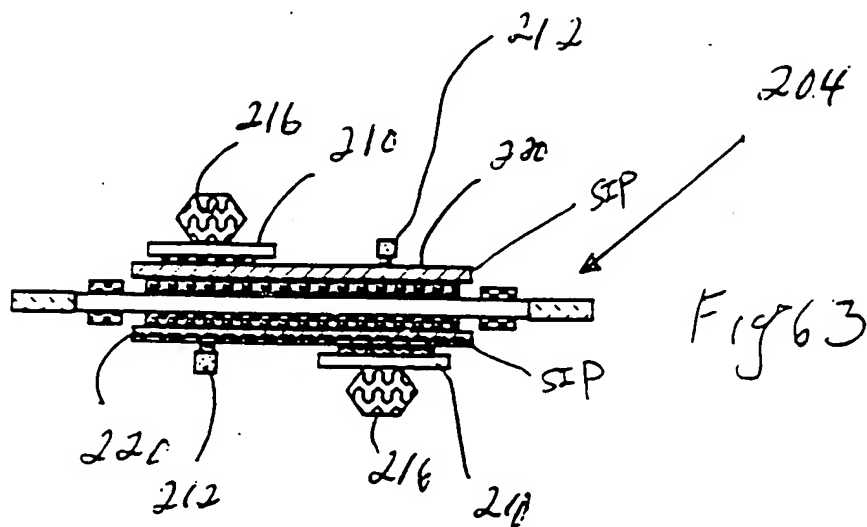
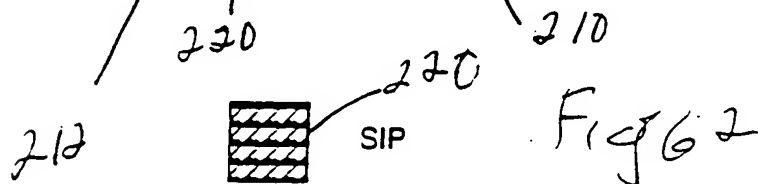
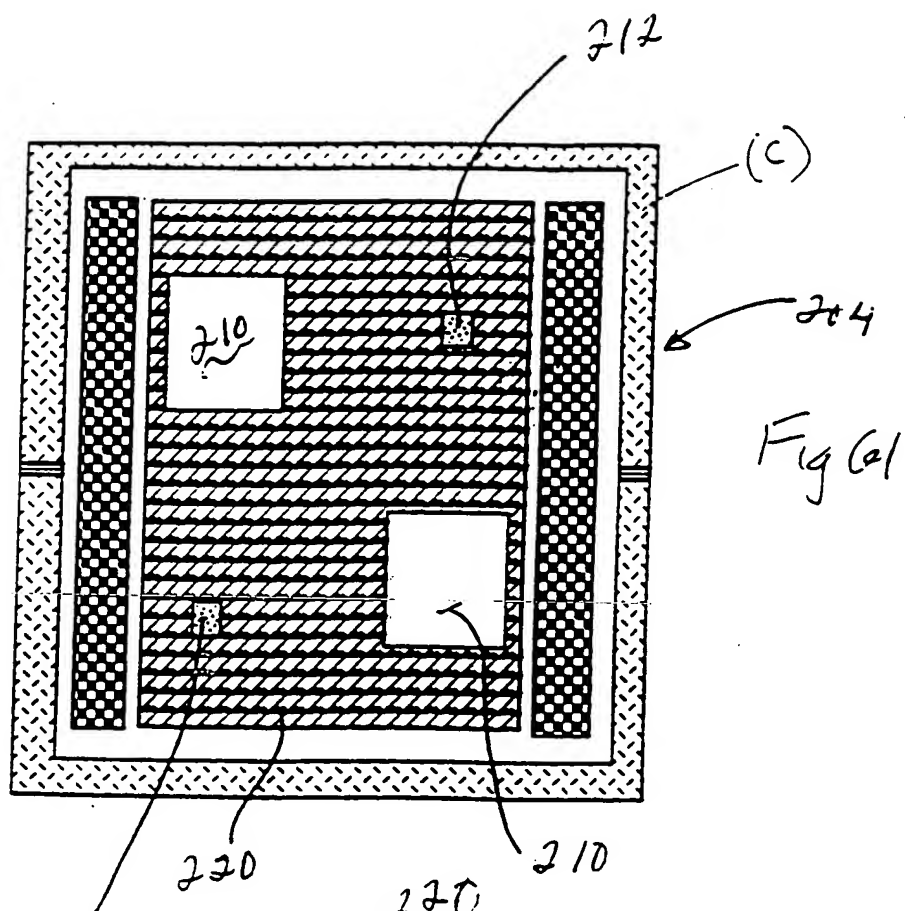
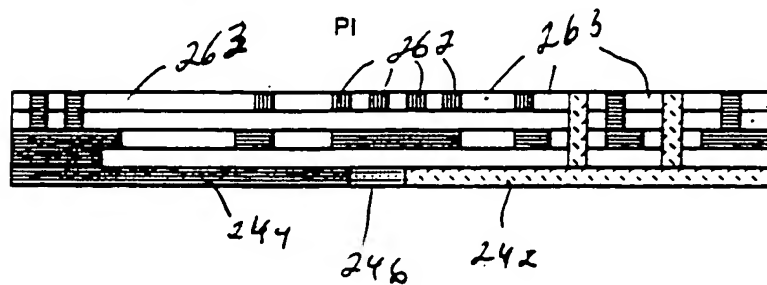
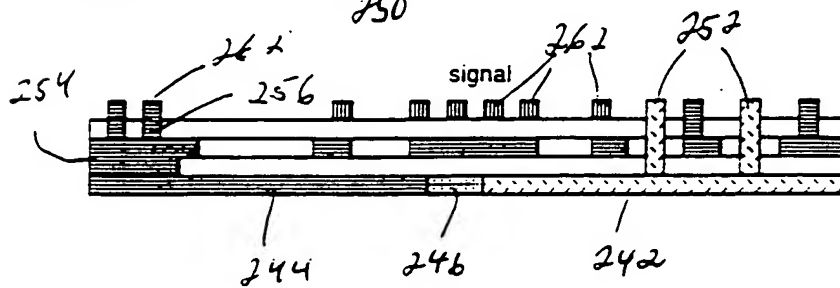
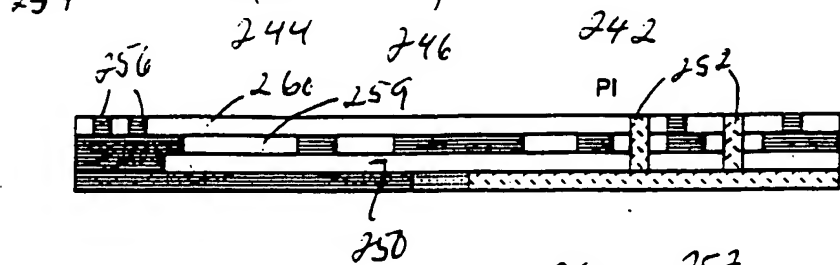
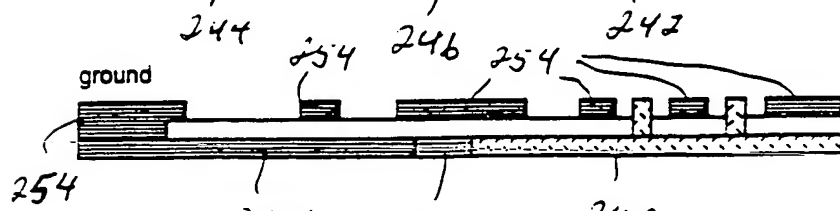
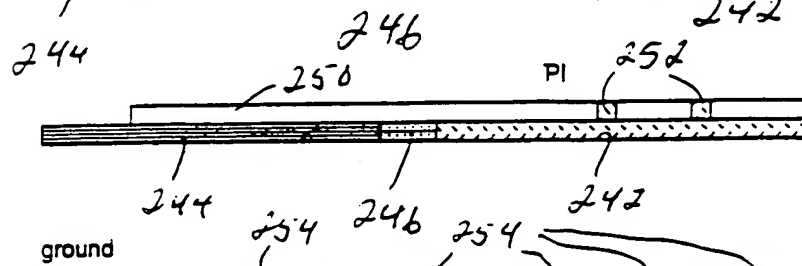
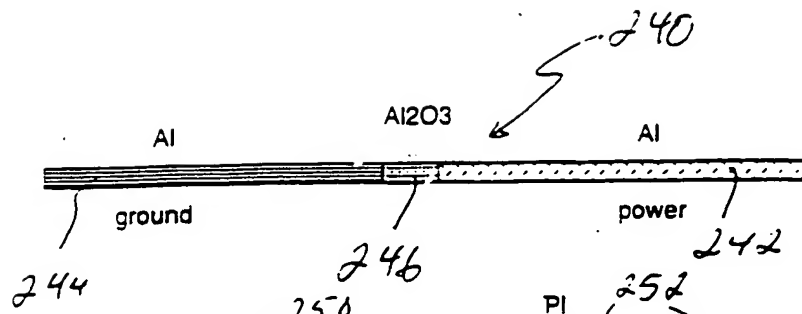


Fig 57







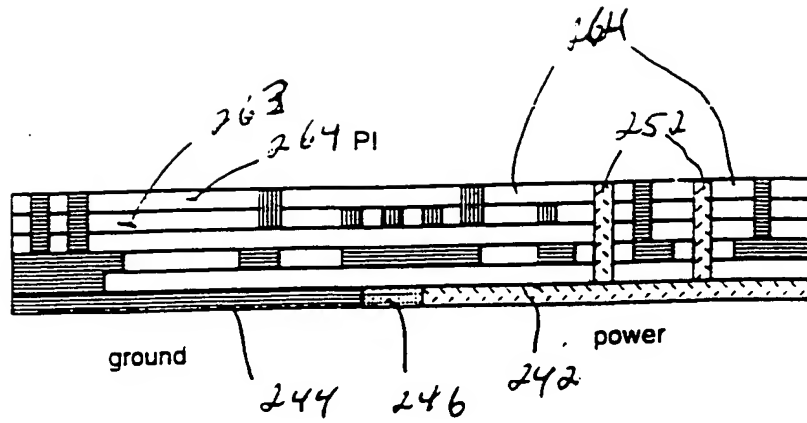


Fig 70

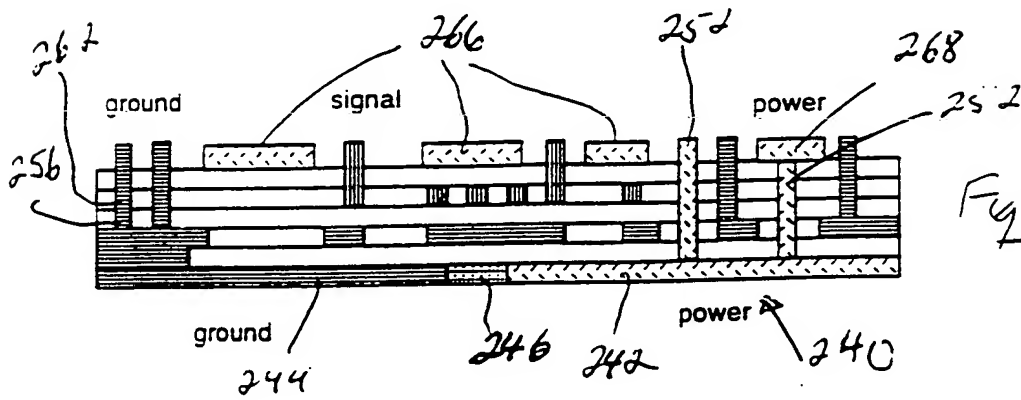


Fig 71

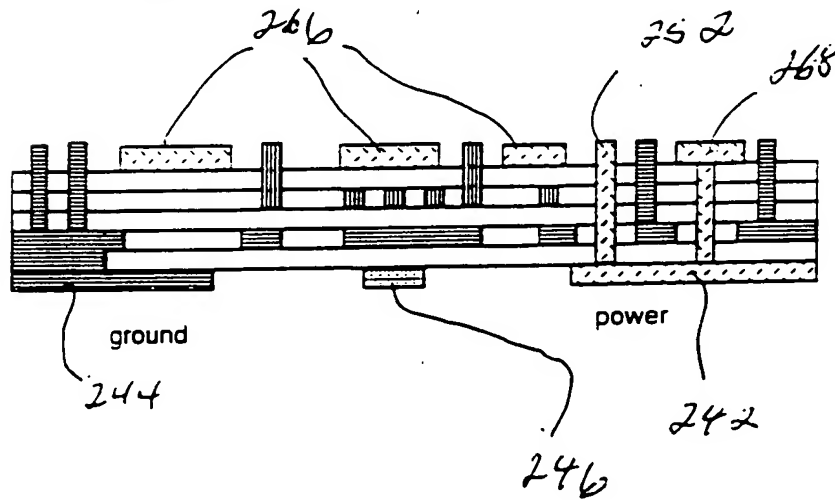


Fig 72

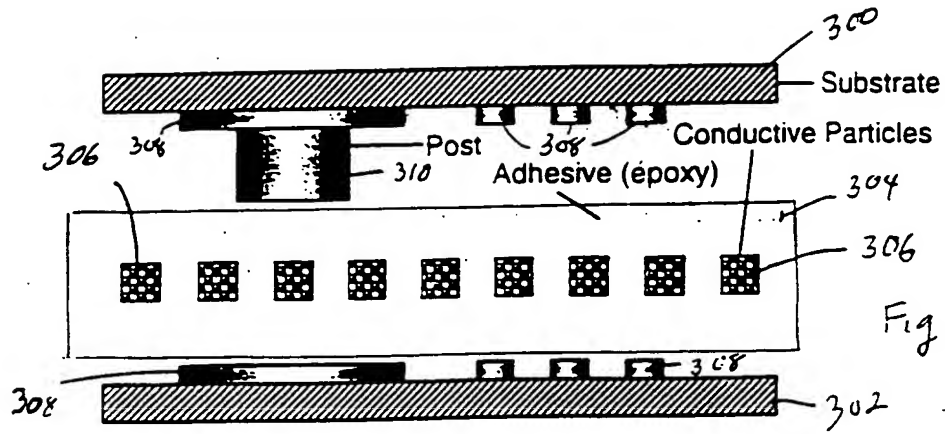


Fig. 76

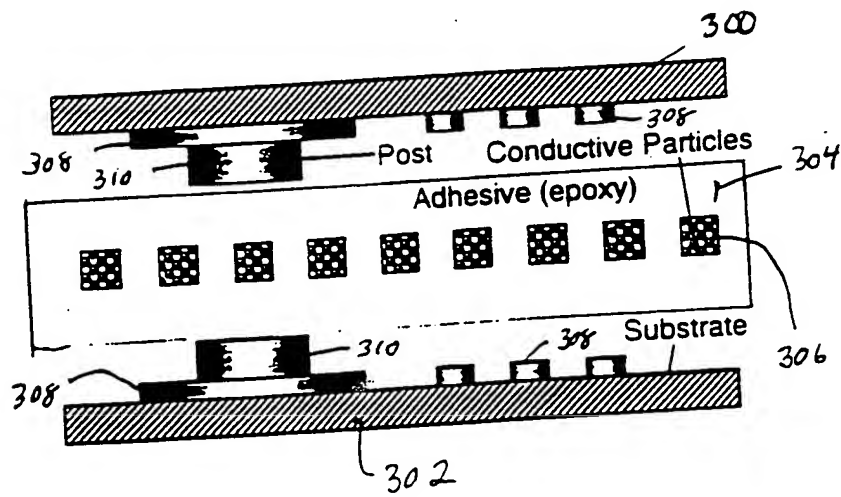


Fig. 77

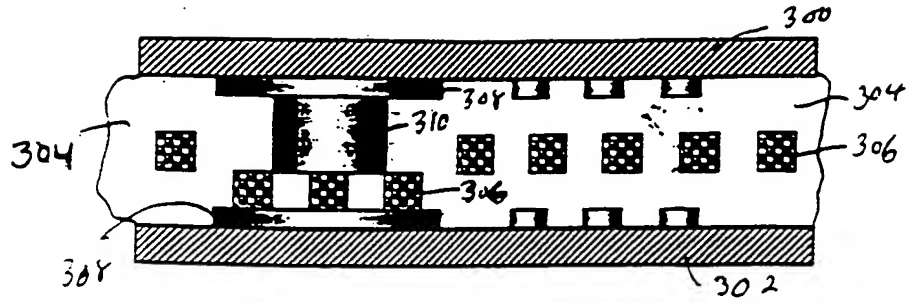


Fig 78

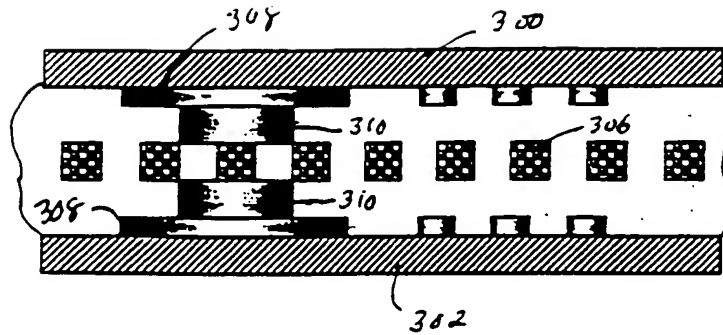
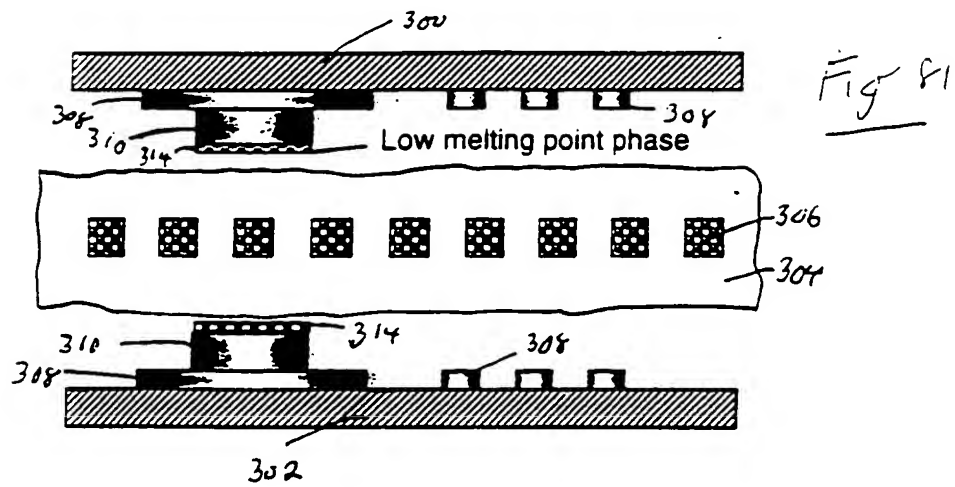
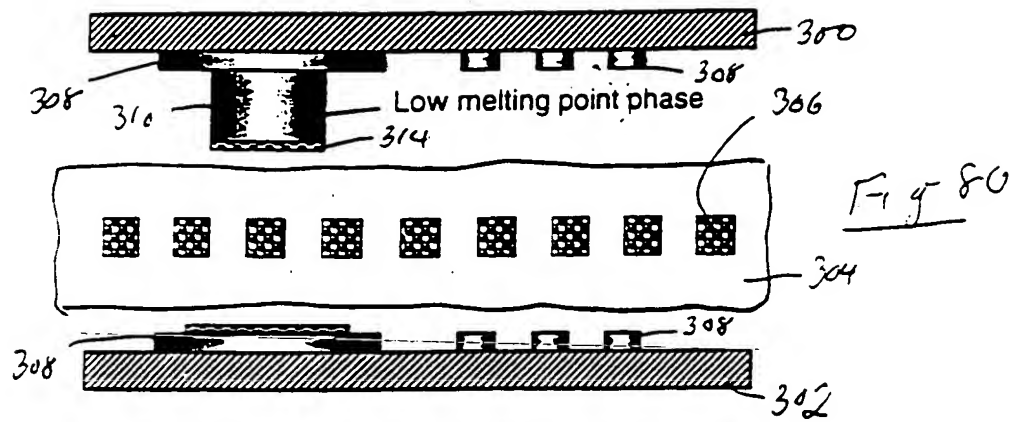


Fig 79



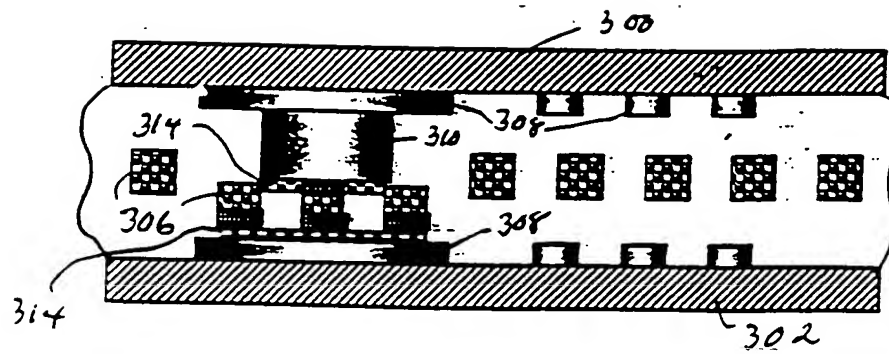


Fig 82

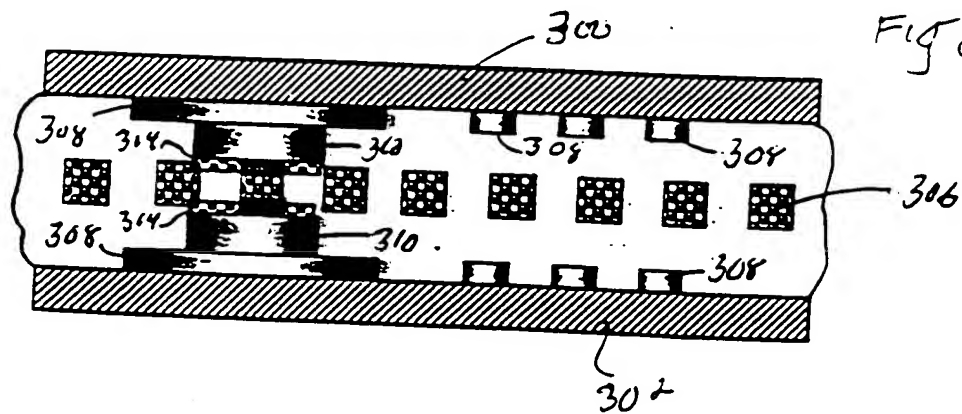


Fig 83

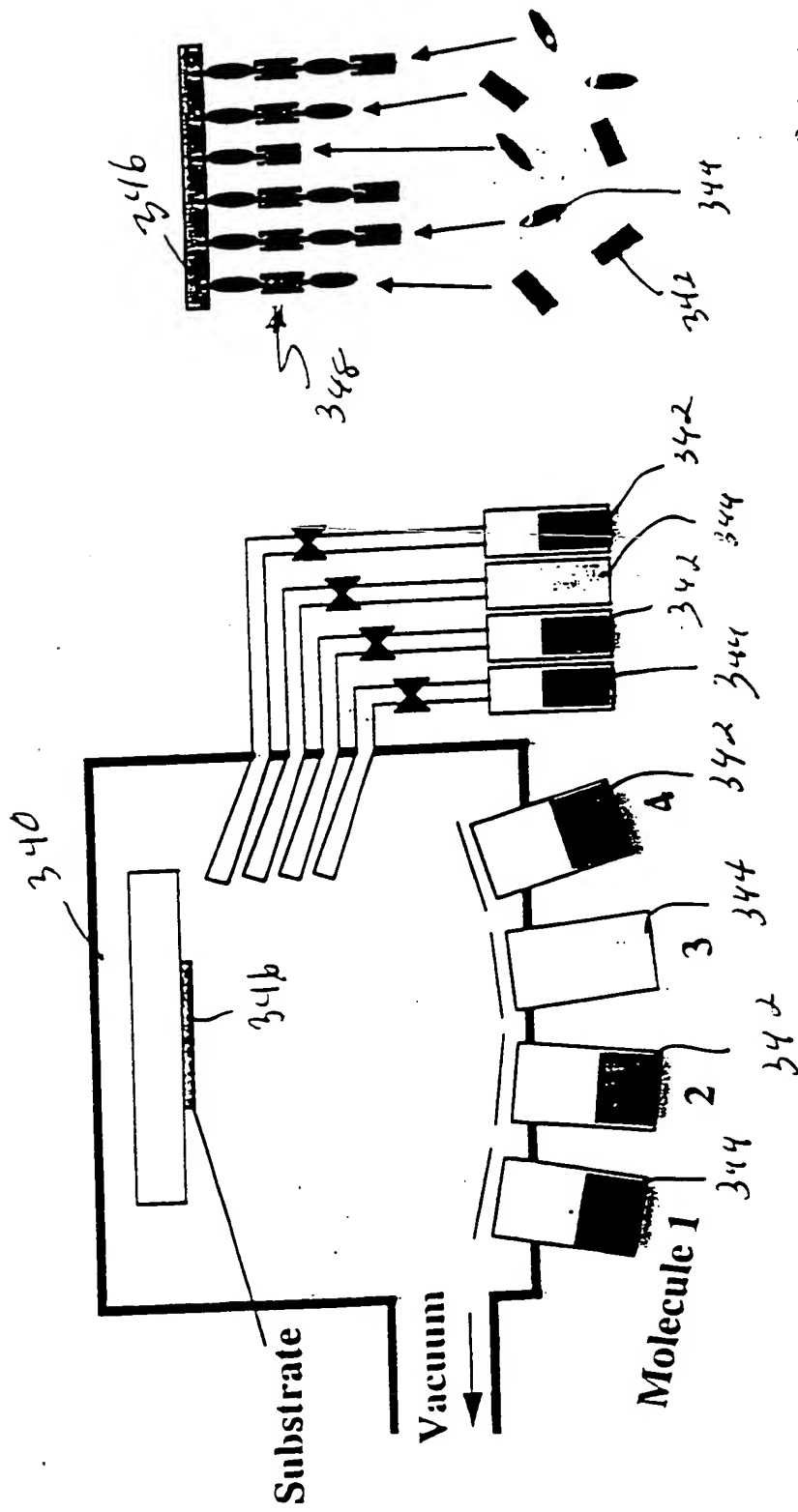
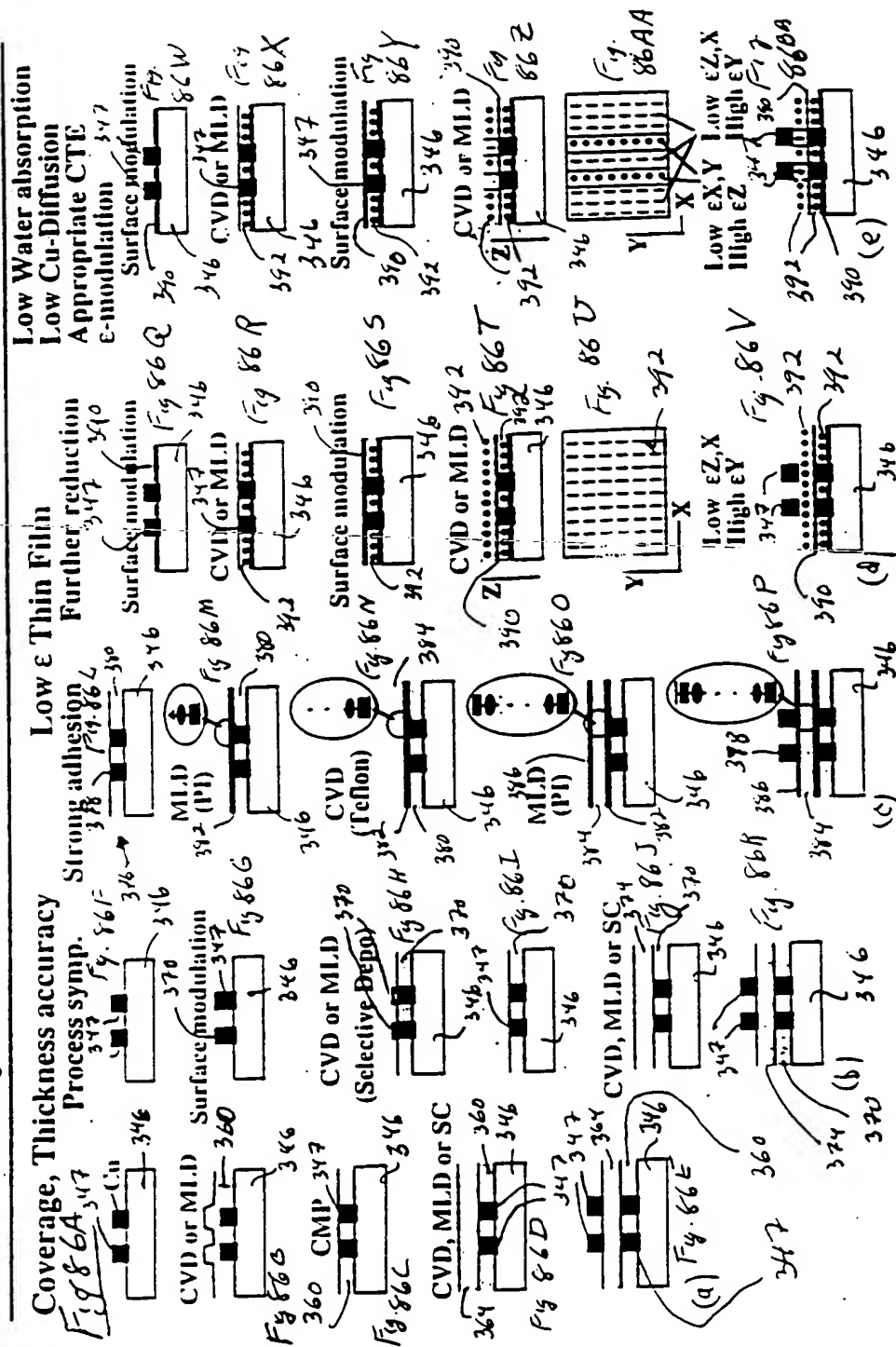
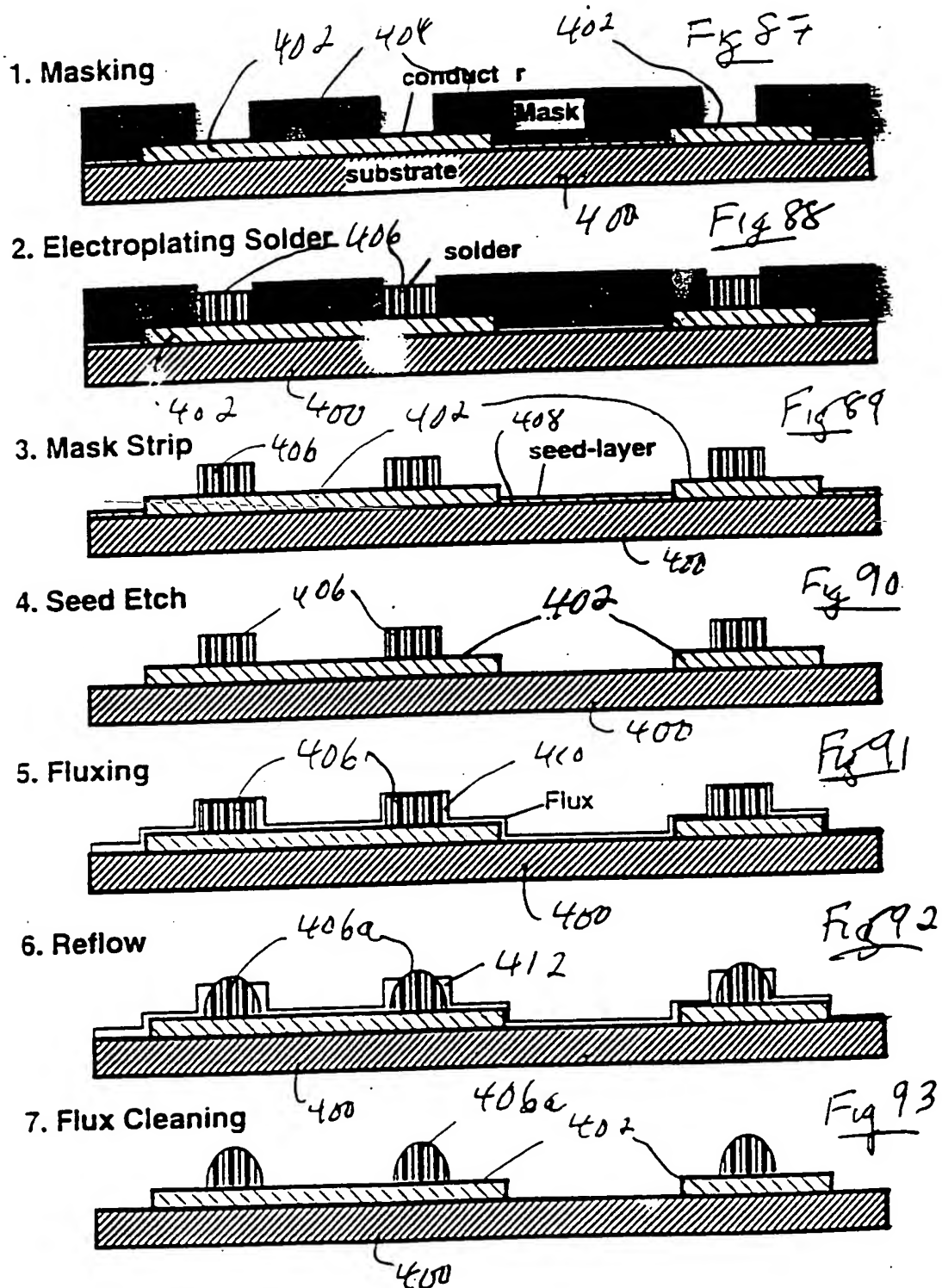


Fig 84A

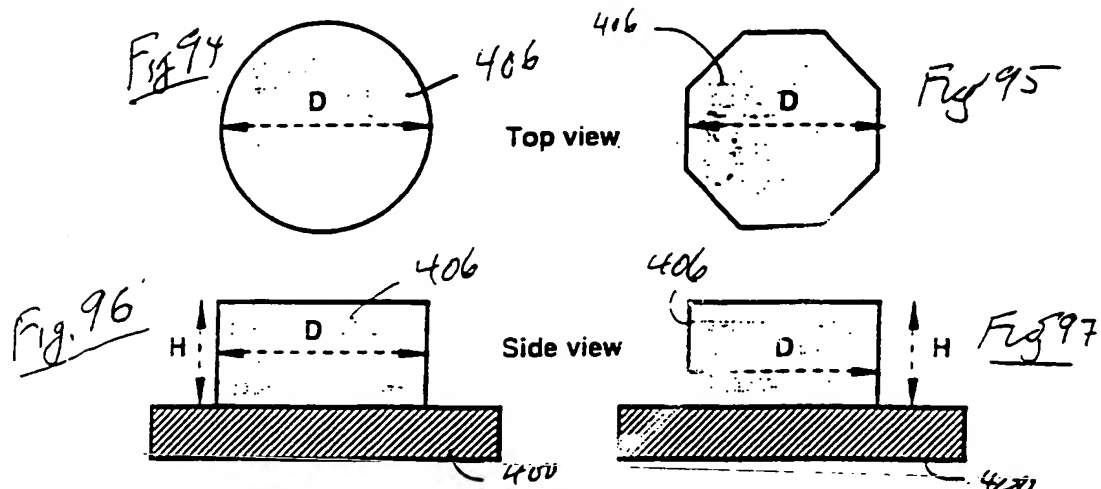
Fig- 84B

Examples of MLD & CVD application to MCM processes

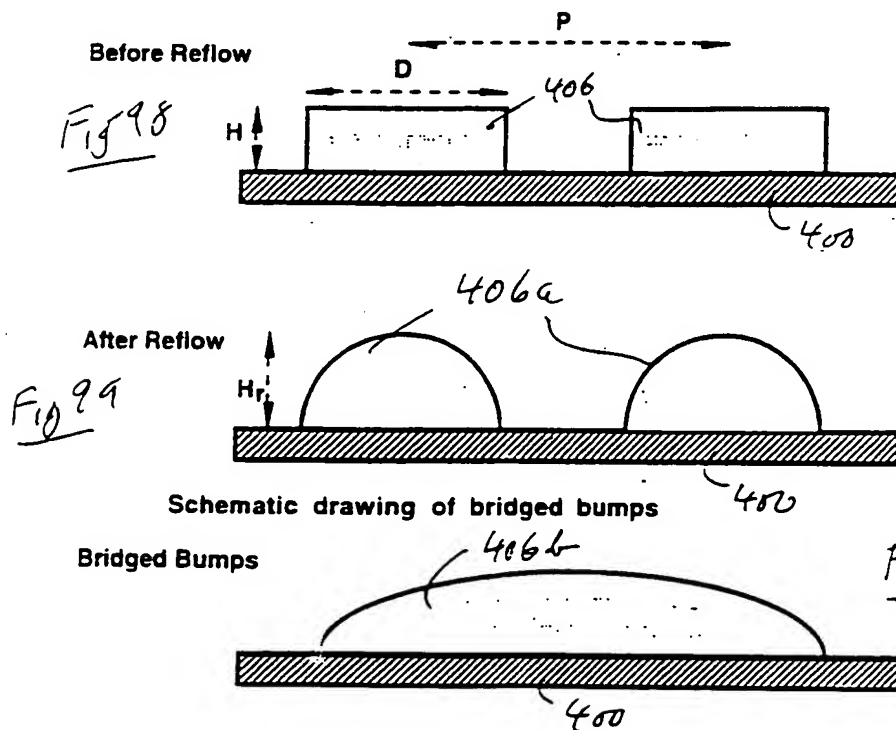




Geometric dimensions of the electroplated bumps.



Geometric shape change of electroplated solder bumps by reflow process



Direct Plating Process

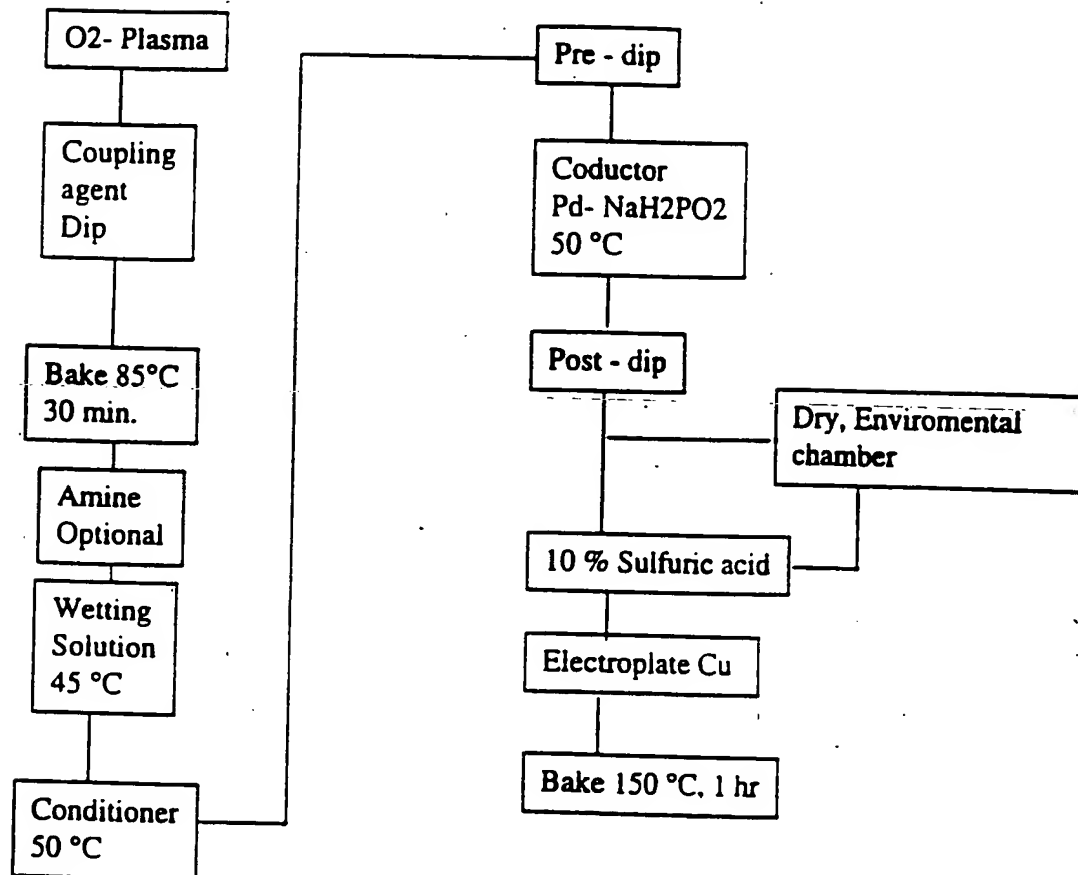
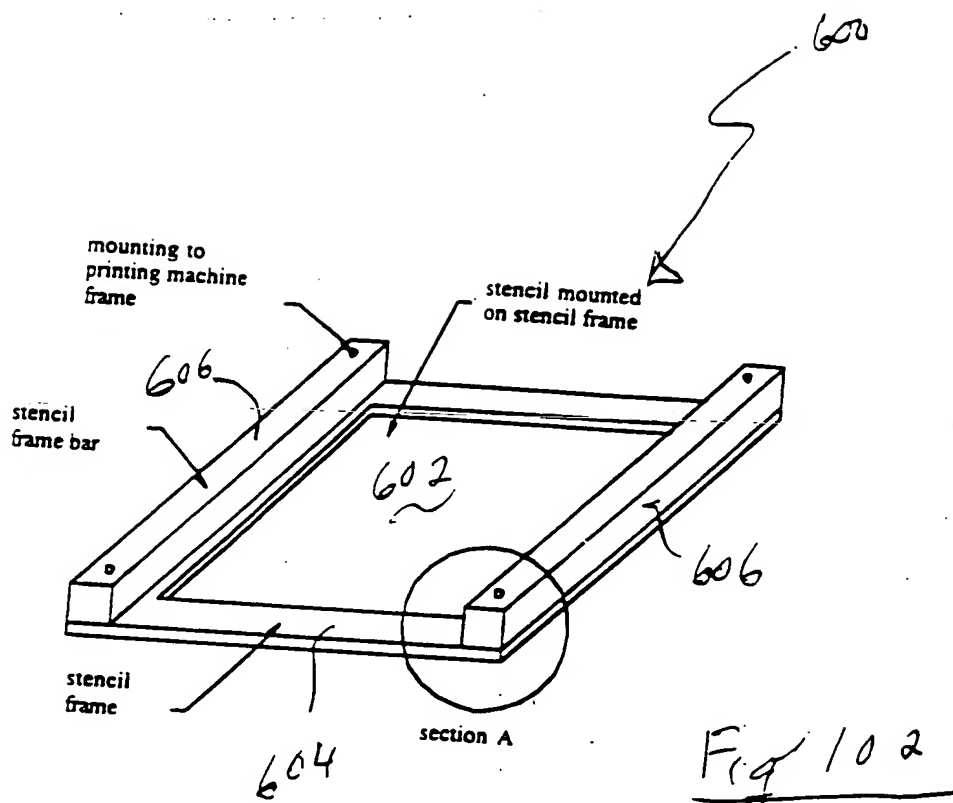
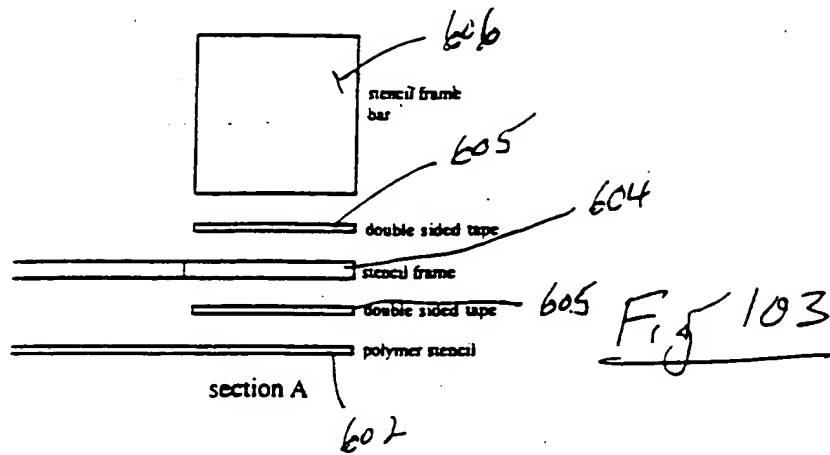


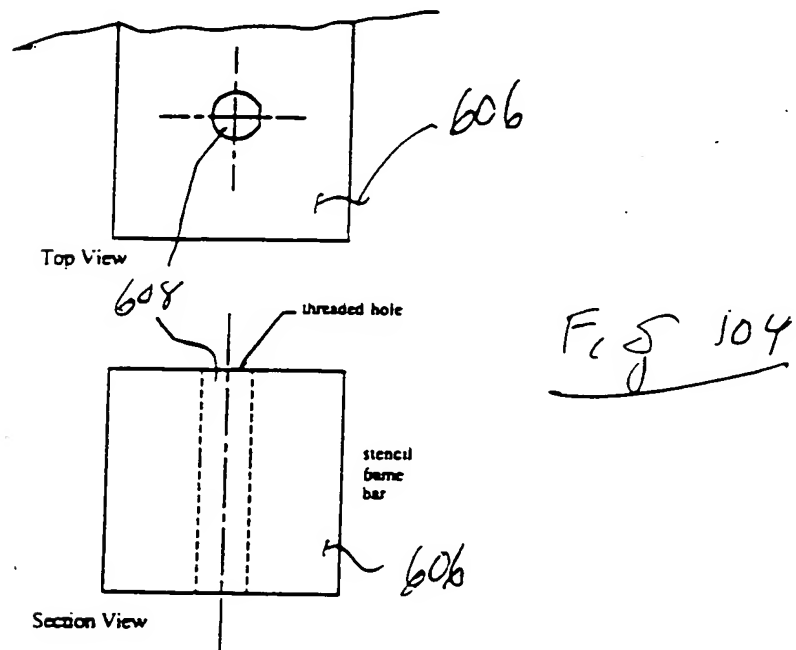
Fig 101A



Stencil Frame Layout.



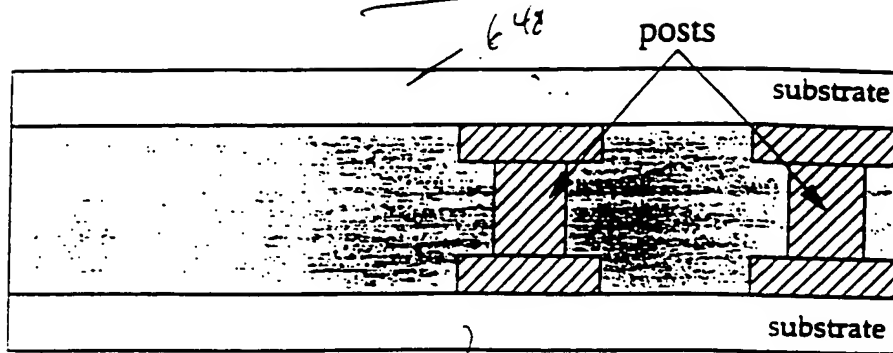
Section View of Stencil Frame Components.



Tapped Hole in Stencil Frame Bar.

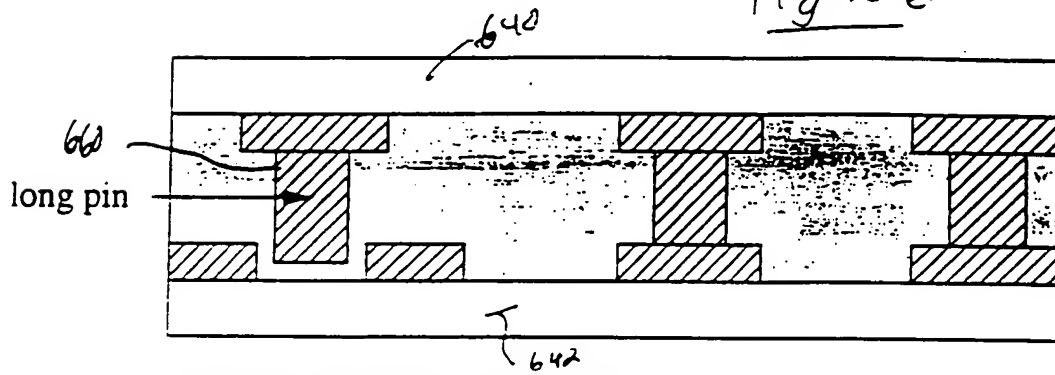
Traditional joining

Fig 105



Alignment and holding using long pin

Fig 106



Alignment and holding using thick pads

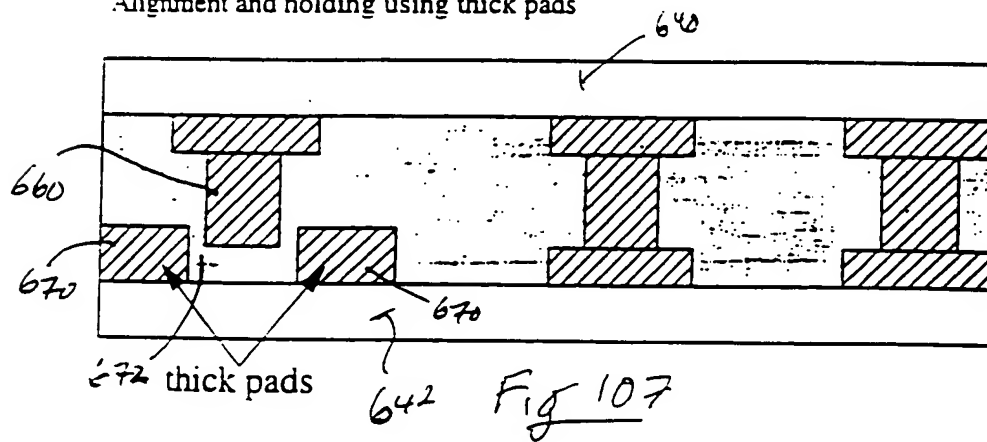


Fig 107

Build-up process for long pin

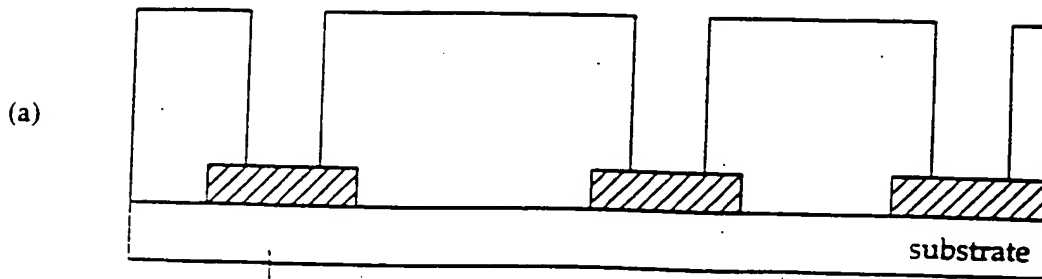
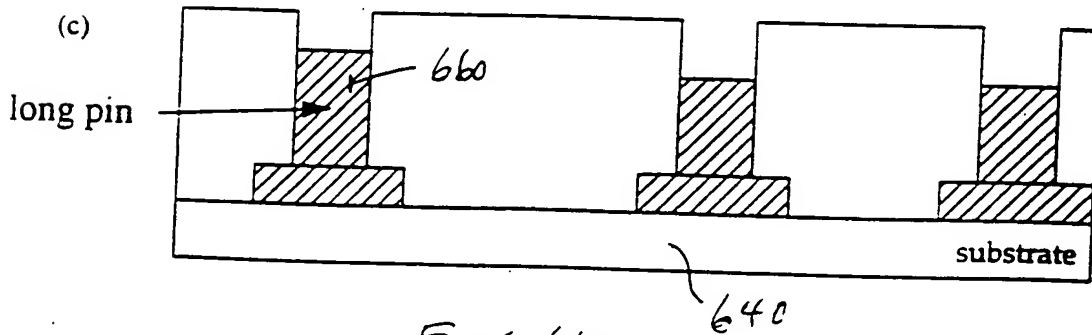
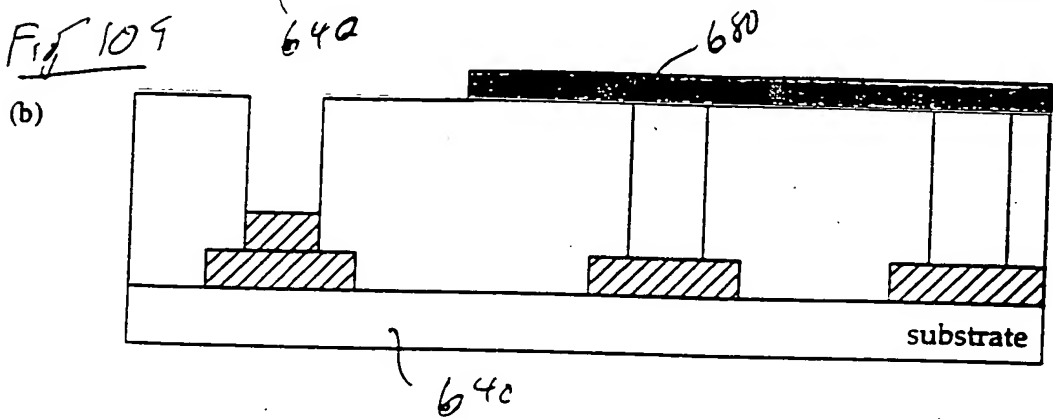
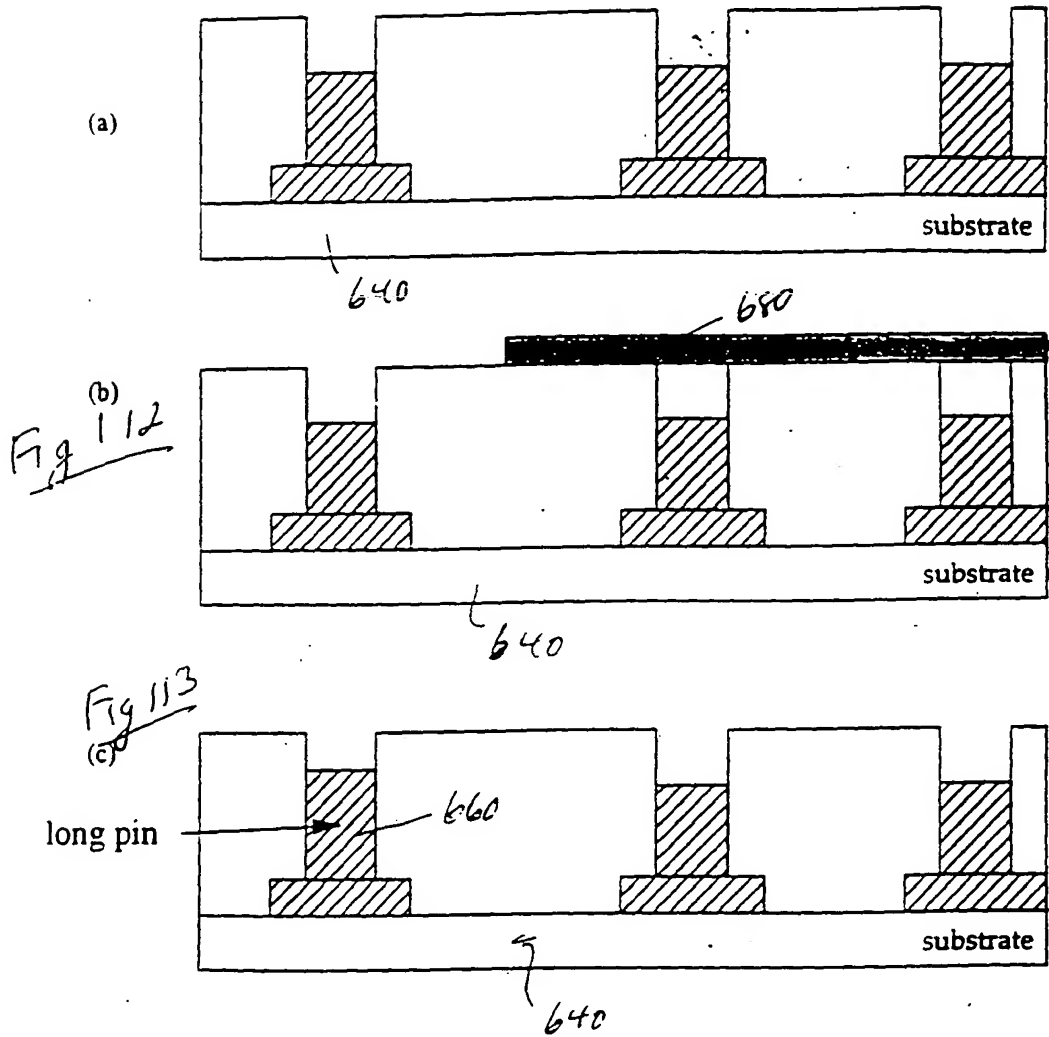
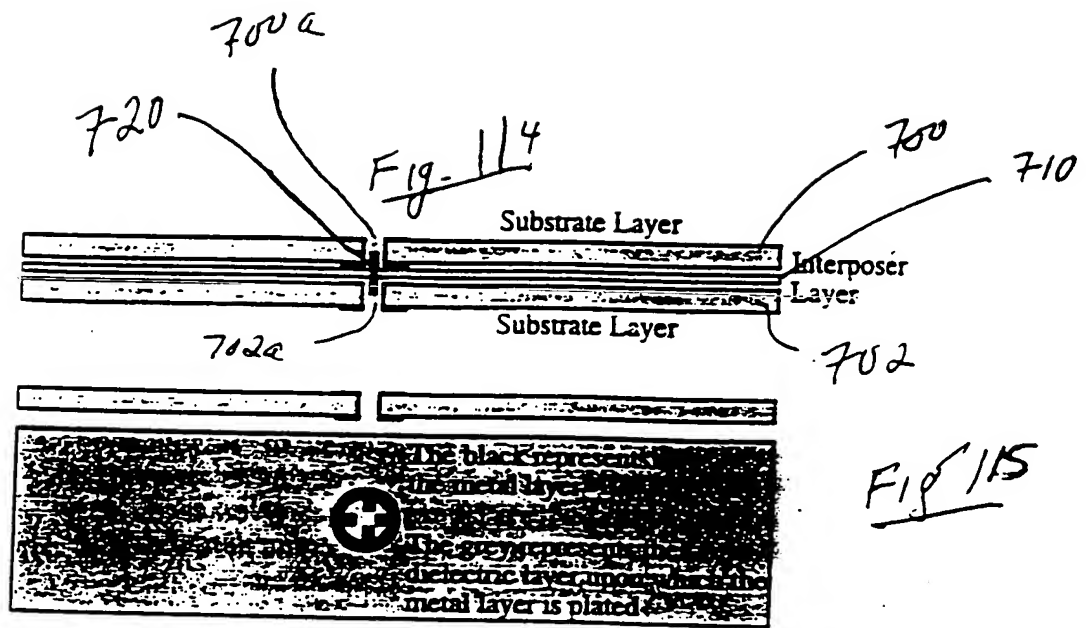
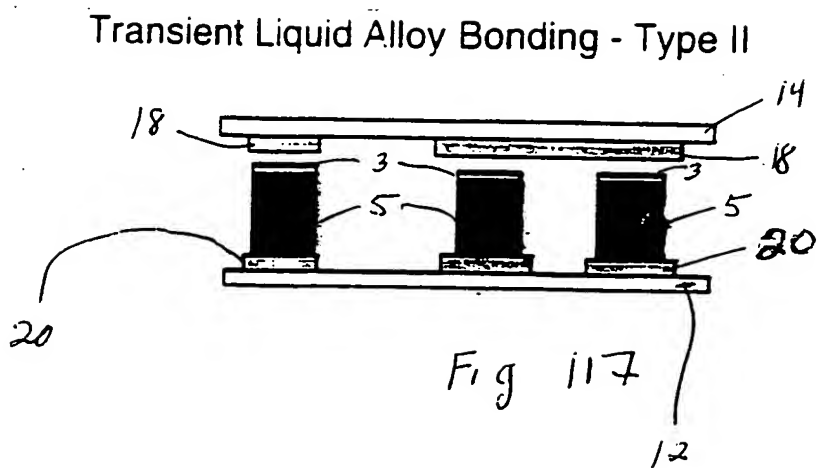
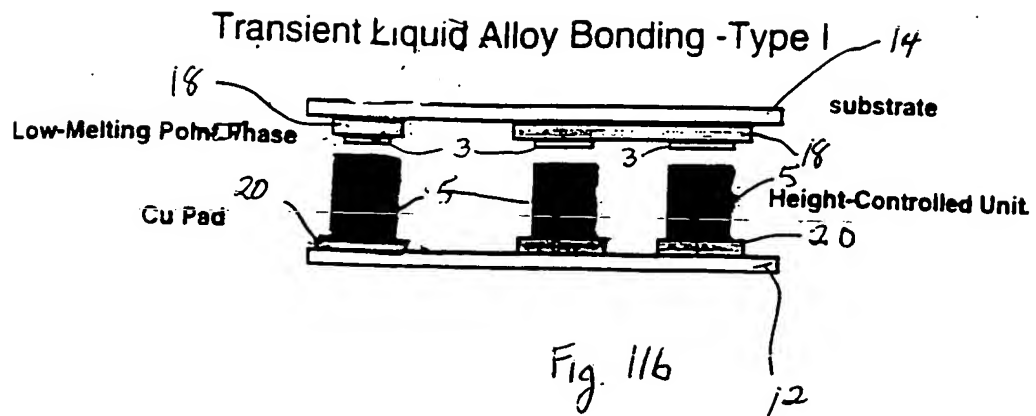
Fig 108Fig 109Fig 110

Fig 111

Another build-up process for long pin







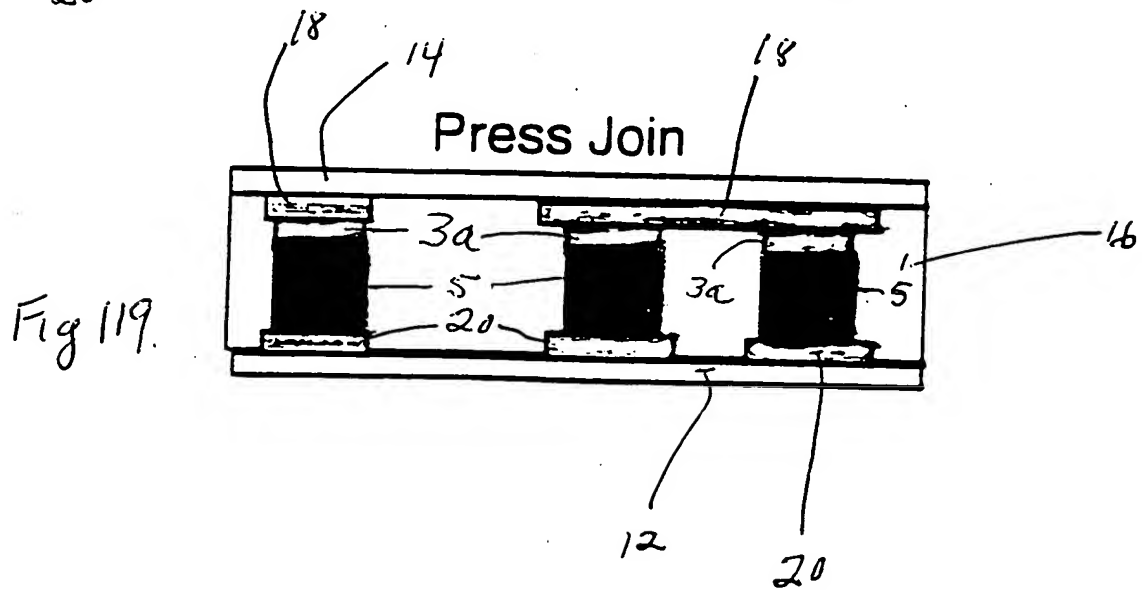
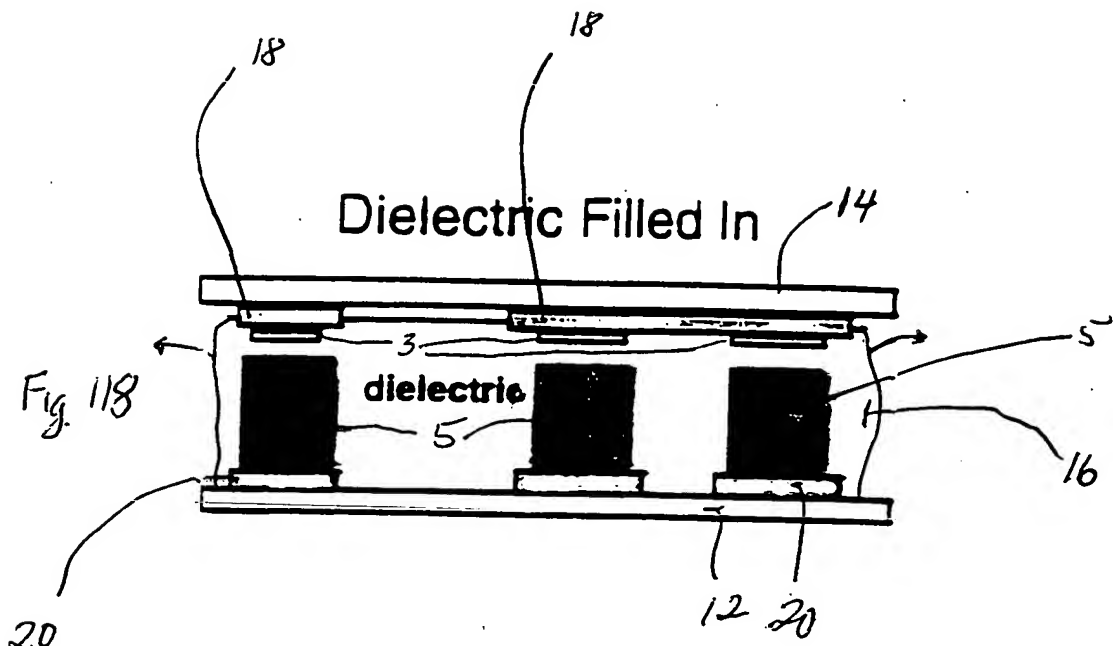
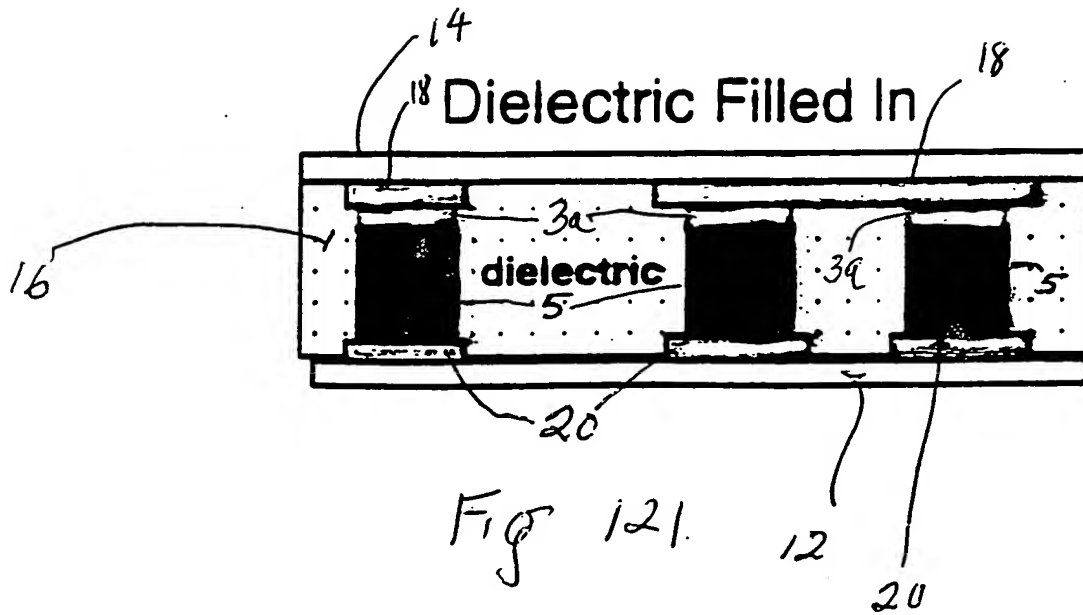
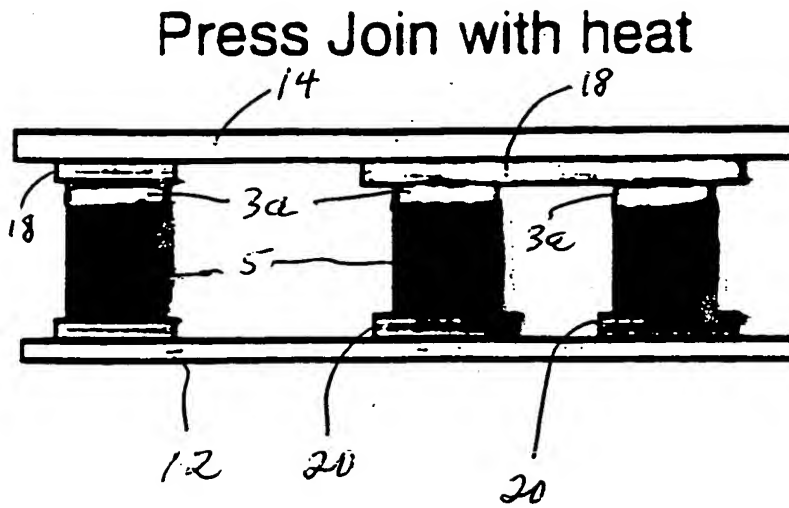


Fig. 120



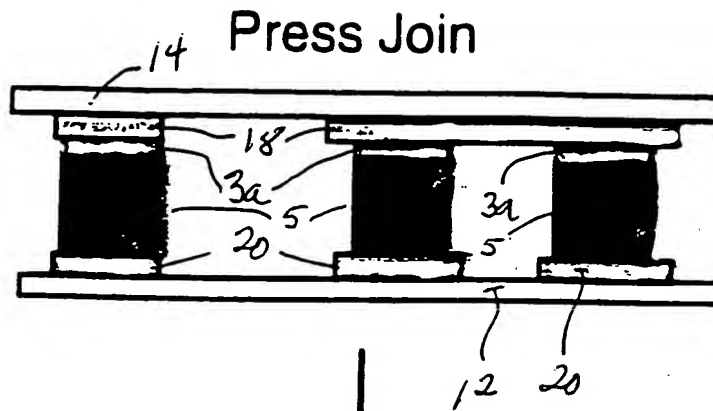
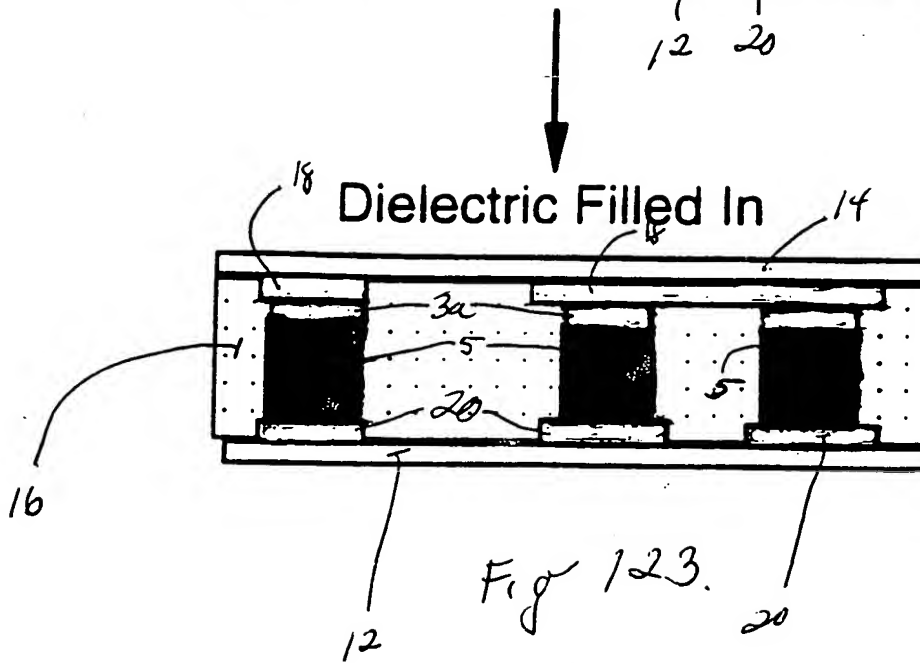


Fig 122.



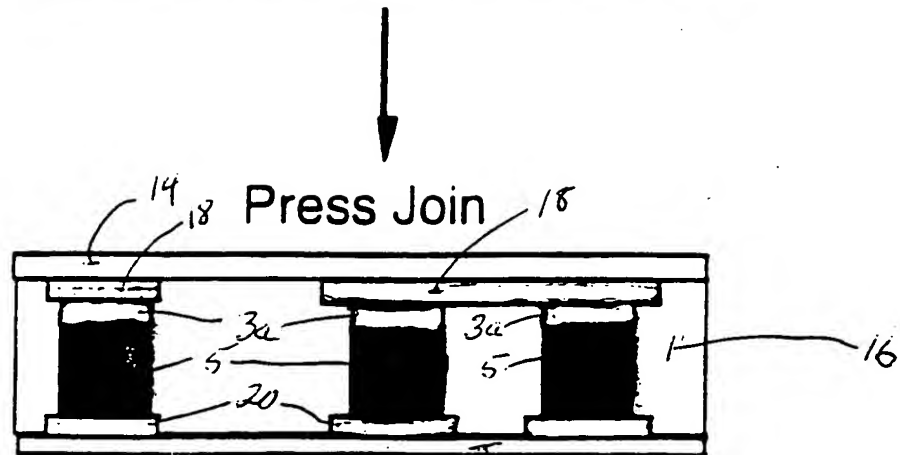
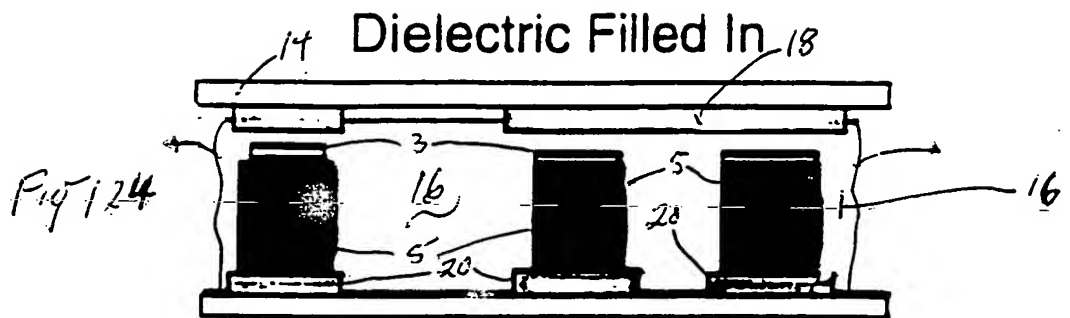


Fig 125